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STRUCTURE FILE UPDATES: 1 APR 2010 HIGHEST RN 1215491-32-9  
 DICTIONARY FILE UPDATES: 1 APR 2010 HIGHEST RN 1215491-32-9

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=> d que 118  
 L4 STR



VAR G1=3/5/7/9/10  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE  
 L7 4228 SEA FILE=REGISTRY SSS FUL L4  
 L14 STR

COORD1

NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE

L16 27 SEA FILE=REGISTRY SUB=L7 SSS FUL L14  
L18 9 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 13:19:25 ON 02 APR 2010

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FILE COVERS 1907 - 2 Apr 2010 VOL 152 ISS 15

FILE LAST UPDATED: 1 Apr 2010 (20100401/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2009

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2009

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the first quarter of 2010.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l18 1-9 ibib ed abs hitstr hitind

L18 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2009:1339889 HCAPLUS Full-text

DOCUMENT NUMBER: 152:110212

TITLE: Synthesis and characterization of copper  
4-carboxyphenylphosphonates

AUTHOR(S): Zima, Vitezslav; Svoboda, Jan; Benes, Ludvik;  
Melanova, Klara; Trchova, Miroslava; Ruzicka, Ales  
CORPORATE SOURCE: Joint Laboratory of Solid State Chemistry of the  
Institute of Macromolecular Chemistry AS CR,  
v.v.i., University of Pardubice, Pardubice, 532  
10, Czech Rep.

SOURCE: Journal of Solid State Chemistry (2009), 182(11),  
3155-3161

CODEN: JSSCBI; ISSN: 0022-4596

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

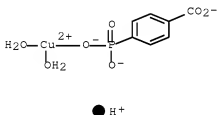
ED Entered STN: 02 Nov 2009

AB Three new Cu 4-carboxyphenylphosphonates  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3) \cdot 2\text{H}_2\text{O}$ ,  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3)$  and  $\text{Cu}_3(\text{OOC}\text{C}_6\text{H}_4\text{PO}_3)_2 \cdot 3\text{H}_2\text{O}$  were prepared and characterized by TGA, x-ray diffraction anal., energy-dispersive X-ray microanal. and IR spectroscopy. The preparation conditions of  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3) \cdot 2\text{H}_2\text{O}$  and  $\text{Cu}_3(\text{OOC}\text{C}_6\text{H}_4\text{PO}_3)_2 \cdot 3\text{H}_2\text{O}$  differ in the acidity of the reaction mixture, where  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3)$  was prepared under hydrothermal conditions.  $\text{Cu}_3(\text{OOC}\text{C}_6\text{H}_4\text{PO}_3)_2 \cdot 3\text{H}_2\text{O}$  reacts with 4-carboxyphenylphosphonic acid to form  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3) \cdot 2\text{H}_2\text{O}$ .  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3) \cdot 2\text{H}_2\text{O}$  is orthorhombic, space group Pbcn,  $a$  8.234(2),  $b$  9.438(2),  $c$  24.899(5) Å.  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3)$  crystallizes in the monoclinic space group P21/c,  $a$  19.0951(3),  $b$  8.0968(4),  $c$  5.2111(11) Å,  $\beta$  94.914(6)°,  $Z = 4$ . Its layered structure is composed of distorted  $\text{CuO}_6$  octahedra arranged hexagonally in a gibbsite-like manner around two phosphonate groups, which have their carboxyphenyl groups extending into the space above and below the Cu-phosphonate layer. IR spectra indicate that for both  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3) \cdot 2\text{H}_2\text{O}$  and  $\text{Cu}(\text{HOOC}\text{C}_6\text{H}_4\text{PO}_3)$  the acid H is present at the carboxyl group and not at the phosphonic group.

IT 1202493-42-2F  
(preparation and crystal structure and thermal decomposition of copper carboxyphenylphosphonate polymeric complex)

RN 1202493-42-2 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED



CC 78-7 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 75

IT 1196872-38-4P 1202493-42-2F  
(preparation and crystal structure and thermal decomposition of copper carboxyphenylphosphonate polymeric complex)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:38101 HCAPLUS Full-text

DOCUMENT NUMBER: 150:185549

TITLE: Medicinal kit for preparing  $^{99}\text{Tc}$  complex compounds, and its preparation and application

INVENTOR(S): Wang, Xuebin; Yang, Shuye; Zhang, Xianzhong; Tang, Zhigang; Zhang, Junbo; Lu, Jie

PATENT ASSIGNEE(S): Beijing Normal University, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 12pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101337081	A	20090107	CN 2008-10118682	20080822

PRIORITY APPLN. INFO.: CN 2008-10118682 20080822

ED Entered SIN: 12 Jan 2009

AB The medicine box is composed of medicine boxes A, B, and C. Medicine box A consists of Na<sub>2</sub>CO<sub>3</sub>, vitamin C, NaBH<sub>4</sub>, K Na tartrate, lactose, and CO gas with weight ratio of 5-100:5-100:10-200:15-300:20-400:10-200. Medicine box B consists of DMSA and vitamin C with weight ratio of 5-100:5-100. Medicine box C consists of tartaric acid, MIBI, and vitamin C with weight ratio of 5-100:1-20:5-100. The preparation method comprises dissolving Na<sub>2</sub>CO<sub>3</sub>, vitamin C, NaBH<sub>4</sub>, K Na tartrate, lactose in water for injection, filtering through 0.22 μm microporous filtering film, vacuum freeze-drying, sealing to obtain medicine box A; dissolving DMSA and vitamin C in water for injection, filtering through 0.22 μm microporous filtering film, vacuum freeze-drying, sealing to obtain medicine box B; dissolving tartaric acid, MIBI, and vitamin C in water for injection, filtering through 0.22 μm microporous filtering film, vacuum freeze-drying, sealing to obtain medicine box C. The method for preparing 99Tc complex, 99mTc(CO)<sub>3</sub>(DMSA)(MIBI), using medicine box comprises injection Na 99mTcO<sub>4</sub> 22.2-370 mega-baker, reacting in boiling water for 30 min to obtain [99mTc(CO)<sub>3</sub>(H<sub>2</sub>O)<sub>3</sub>]<sup>+</sup>; injecting [99mTc(CO)<sub>3</sub>(H<sub>2</sub>O)<sub>3</sub>]<sup>+</sup> into medicine box B, reacting for 10-15 min to obtain 99mTc(CO)<sub>3</sub>-DMSA; adding 99mTc(CO)<sub>3</sub>-DMSA into medicine box C, and reacting in boiling water. 99mTc(CO)<sub>3</sub>(DMSA)(MIBI) is used in developer of human and animal tissues or organ.

IT 1108200-02-7P

(medicinal kit for preparing 99Tc complex compds., and its preparation and application)

RN 1108200-02-7 HCAPLUS

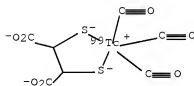
CN Copper(1+), tetrakis[1-(isocyano-κC)-2-methoxy-2-methylpropane]-, (T-4)-, tricarbonyl[2,3-di(mercapto-κS)butanedioato(4-)]technetate(3-)-99Tc tetrafluoroborate(1-) (1:1:1) (CA INDEX NAME)

CM 1

CRN 1108200-01-6

CMF C7 H2 O7 S2 Tc

CCI CCS



CM 2

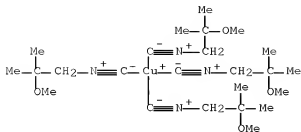
CRN 103694-84-4

CMF C24 H44 Cu N4 O4 . B F4

CM 3

CRN 103694-83-3

CMF C24 H44 Cu N4 O4  
CCI CCS



CM 4

CRN 14874-70-5

CMF B F4

CCI CCS



CC 8-9 (Radiation Biochemistry)

Section cross-reference(s): 63, 78

IT 14133-76-7DP, complexes, biological studies 1108200-02-7P

(medicinal kit for preparing 99Tc complex compds., and its preparation and application)

L18 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:564628 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 143:89661

TITLE: Preparation of copper(I) formate complexes as precursors for copper metal deposition

INVENTOR(S): Wittenbecher, Lars; Lang, Heinrich; Shen, Yingzhong

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 15 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005058789	A2	20050630	WO 2004-EP14275	20041215
WO 2005058789	A3	20051208		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
 VC, VN, YU, ZA, ZM, ZW, SM  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
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 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,  
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,  
 GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 DE 10360046 A1 20050721 DE 2003-10360046 20031218  
 EP 1697296 A2 20060906 EP 2004-803895 20041215  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS  
 CN 1894192 A 20070110 CN 2004-80037818 20041215  
 JP 2007514687 T 20070607 JP 2006-544327 20041215  
 US 20070197810 A1 20070823 US 2006-583103 20060616  
 PRIORITY APPLN. INFO.: DE 2003-10360046 A 20031218  
 WO 2004-EP14275 W 20041215

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): CASREACT 143:89661; MARPAT 143:89661

ED Entered STN: 30 Jun 2005

AB Cu (I) formate complexes  $\text{LnCu}(\text{HCOO})_x\text{xCOOH}$  are decomposed to sep. metallic Cu ( $x = 0-10$ ,  $n = 2, 3$  or  $4$ ;  $L =$  (independent of one another) a phosphine  $\text{R}_1\text{R}_2\text{R}_3\text{P}$ ; a phosphite  $(\text{R}_1\text{O})(\text{R}_2\text{O})(\text{R}_3\text{O})\text{P}$ ; an isocyanide  $\text{R}_1\text{NC}$ ; an alkene  $\text{R}_1\text{R}_2\text{C} = \text{CR}_3\text{R}_4$ ; or an alkyne  $\text{R}_1\text{C} \equiv \text{CR}_2$ ; wherein  $\text{R}_1, \text{R}_2, \text{R}_3$  and  $\text{R}_4$  represent, independent of one another,  $\text{H}$ , a linear or branched, optionally partly or fully fluorinated alkyl, aminoalkyl, alkoxyalkyl, hydroxyalkyl, phosphinoalkyl or aryl radical having up to 20 C atoms, with the exception of triphenylphosphine-Cu(I) formate and 1,1,1-tris(diphenylphosphinomethyl)ethane-Cu(I) formate). For example,  $\text{Cu}(\text{O}_2\text{CH})$  was prepared from  $\text{CuCl}$  and  $\text{HCO}_2\text{H}$  or from  $\text{Cu}(\text{O}_2\text{CH})_2$  and was reacted with  $L$  to give the resp. complexes.  $\text{Cu}(\text{O}_2\text{CH})_2$  reacted with  $\text{HCO}_2\text{H}$  in presence of  $\text{Cu}$  and  $\text{P}(\text{OEt})_3$  to give  $\text{Cu}(\text{O}_2\text{CH})(\text{P}(\text{OEt})_3)_2 \cdot x\text{HCO}_2\text{H}$ . Thermal decomposition of  $\text{Cu}(\text{O}_2\text{CH})(\text{P}(\text{OEt})_3)_2 \cdot x\text{HCO}_2\text{H}$  gave  $\text{Cu}$ .

IT 855516-69-7P 855516-89-1P 855516-91-5P  
 855516-93-7P 855516-95-9P 855516-97-1P  
 855516-99-3P 855517-02-1P 855517-04-3P  
 855517-06-5P 855517-08-7P

(preparation as precursor for copper metal deposition)

RN 855516-69-7 HCAPLUS

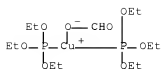
CN Copper, (formato-kO)bis(triethyl phosphite-kP)-, compd.  
 with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-68-6

CMF C13 H31 Cu O8 P2

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



RN 855516-89-1 HCAPLUS

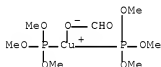
CN Copper, (formato-kappa O)bis(trimethyl phosphite-kappa P)-, compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-88-0

CMF C7 H19 Cu O8 P2

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2

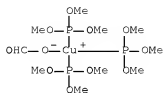


RN 855516-91-5 HCAPLUS

CN Copper, (formato-kappa O)tris(trimethyl phosphite-kappa P)-, (T-4)-, compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-90-4  
 CMF C10 H28 Cu O11 P3  
 CCI CCS



CM 2

CRN 64-18-6  
 CMF C H2 O2

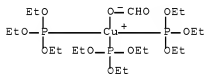


RN 855516-93-7 HCAPLUS

CN Copper, (formato-κO)tris(triethyl phosphite-κP)-, (T-4)-, compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-92-6  
 CMF C19 H46 Cu O11 P3  
 CCI CCS



CM 2

CRN 64-18-6  
 CMF C H2 O2





RN 855516-95-9 HCAPLUS

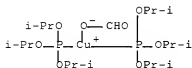
CN Copper, (formato-κO)bis[tris(1-methylethyl)  
phosphite-κP]-, compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-94-8

CMF C19 H43 Cu O8 P2

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



RN 855516-97-1 HCAPLUS

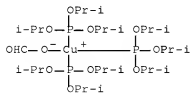
CN Copper, (formato-κO)tris[tris(1-methylethyl)  
phosphite-κP]-, (T-4)-, compd. with formic acid (9CI) (CA INDEX  
NAME)

CM 1

CRN 855516-96-0

CMF C28 H64 Cu O11 P3

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



RN 855516-99-3 HCAPLUS

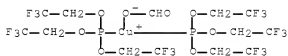
CN Copper, (formato-κO)bis[tris(2,2,2-trifluoroethyl)  
phosphite-κP]-, compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855516-98-2

CMF C13 H13 Cu F18 O8 P2

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



RN 855517-02-1 HCAPLUS

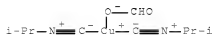
CN Copper, (formato-κO)bis[2-(isocyano-κC)propane]-, compd.  
with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855517-01-0

CMF C9 H15 Cu N2 O2

CCI CCS



CM 2

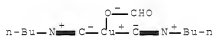
CRN 64-18-6  
CMF C H2 O2



RN 855517-04-3 HCAPLUS  
CN Copper, (formato-κO)bis[1-(isocyano-κC)butane]-, compd.  
with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855517-03-2  
CMF C11 H19 Cu N2 O2  
CCI CCS



CM 2

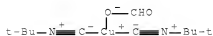
CRN 64-18-6  
CMF C H2 O2



RN 855517-06-5 HCAPLUS  
CN Copper, (formato-κO)bis[2-(isocyano-κC)-2-methylpropane]-,  
compd. with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855517-05-4  
CMF C11 H19 Cu N2 O2  
CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



RN 855517-08-7 HCAPLUS

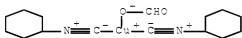
CN Copper, (formato-κO)bis[(isocyano-κC)cyclohexane]-, compd.  
with formic acid (9CI) (CA INDEX NAME)

CM 1

CRN 855517-07-6

CMF C15 H23 Cu N2 O2

CCI CCS



CM 2

CRN 64-18-6

CMF C H2 O2



IC ICM C07C053-06

ICS C23C018-12

CC 78-7 (Inorganic Chemicals and Reactions)

IT 855516-69-7P 855516-71-1P 855516-73-3P 855516-75-5P

855516-77-7P 855516-79-9P 855516-81-3P 855516-83-5P

855516-85-7P 855516-87-9P 855516-89-1P

855516-91-5P 855516-93-7P 855516-95-9P

855516-97-1P 855516-99-3P 855517-00-9P

855517-02-1P 855517-04-3P 855517-06-5P

855517-08-7P

(preparation as precursor for copper metal deposition)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L18 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:601596 HCAPLUS Full-text

DOCUMENT NUMBER: 125:247228

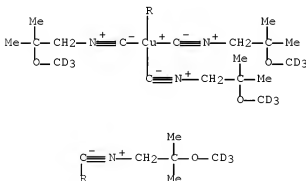
ORIGINAL REFERENCE NO.: 125:46209a,46212a  
 TITLE: Preparation of 2-deuterioalkoxy-2-methylpropyl isonitrile complexes as scintigraphic agents  
 INVENTOR(S): Knoesen, Otto  
 PATENT ASSIGNEE(S): Atomic Energy Corp. of South Africa Ltd., S. Afr.  
 SOURCE: S. African, 61 pp.  
 CODEN: SFXXAB  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
ZA 9501503	A	19950922	ZA 1995-1503	19950223
PRIORITY APPLN. INFO.:			ZA 1993-8986	A 19931201

ED Entered STN: 10 Oct 1996  
 AB Me2C(OR)CH2N.tplbond.C (R = trideuteriomethyl, pentadeuterioethyl) were prepared Thus, CH2:CMech2NH2 was N-formylated and the product treated with deuterated-MeOH/HgCl2/HClO4 to give, after dehydration, Me2C(OCD3)CH2N.tplbond.C from which [Cu(C.tplbond.NCH2CMe2OCD3)4]BF4 was prepared The latter was used to prepare a 99Tc complex administered to baboons. Data and images were given.  
 IT 181528-95-0P 181529-00-0P  
 (preparation of 2-deuterioalkoxy-2-methylpropyl isonitrile complexes as scintigraphic agents)  
 RN 181528-95-0 HCAPLUS  
 CN Copper(1+), tetrakis[1-isocyano-2-(methoxy-d3)-2-methylpropanel-, (T-4)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 181528-92-7  
 CMF C24 H32 Cu D12 N4 O4  
 CCI CCS



CM 2

CRN 14477-72-6  
 CMF C2 F3 O2



RN 181529-00-0 HCAPLUS

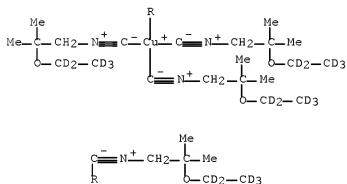
CN Copper(1+), tetrakis[2-(ethoxy-d5)-1-isocyano-2-methylpropane]-,  
(T-4)-, salt with trifluoroacetic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 181528-97-2

CMF C28 H32 Cu D20 N4 O4

CCI CCS



CM 2

CRN 14477-72-6

CMF C2 F3 O2



IC ICM C07C

ICS C07F; A61K

CC 23-19 (Aliphatic Compounds)

Section cross-reference(s): 8

IT 25913-66-0P, N-Formylmethallylamine 134785-50-5P 134785-52-7P

181528-86-9P 181528-87-0P 181528-88-1P 181528-89-2P

181528-90-5P 181528-91-6P 181528-93-8P 181528-94-9P

181528-95-QP 181528-96-1P 181528-98-3P 181528-99-4P  
 181529-00-QP 181529-01-1P

(preparation of 2-deuterioalkoxy-2-methylpropyl isonitrile complexes as scintigraphic agents)

L18 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1989:545157 HCAPLUS Full-text

DOCUMENT NUMBER: 111:145157

ORIGINAL REFERENCE NO.: 111:24061a,24064a

TITLE: Poly(ethynylacetylenes)

INVENTOR(S): Ikeda, Yukihiro; Ozaki, Masaru

PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology,  
 Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 01074205	A	19890320	JP 1987-228352	19870914
JP 04012886	B	19920306		
PRIORITY APPLN. INFO.:			JP 1987-228352	19870914

ED Entered STN: 14 Oct 1989

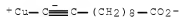
AB The title polymers containing 10-1000 repeating units C(C.tplbond.CR):CH [R = (CH<sub>2</sub>)nCO<sub>2</sub>.1/mM; n = 8-22; M = di-, tri-, or tetravalent metal ion, proton; m = valence of metal ion], useful for elec. conductive polymers and pattern-forming resists, are prepared HC.tplbond.C(CH<sub>2</sub>)8CO<sub>2</sub>H 2 g was esterified with MeOH, 1.9 g of the Me ester was treated successively with CuI and I<sub>2</sub> and then coupled with CuC.tplbond.CCO<sub>2</sub>H to give 0.66 g HO<sub>2</sub>CC.tplbond.CC.tplbond.C(CH<sub>2</sub>)8CO<sub>2</sub>Me, which was decarboxylated and hydrolyzed to give 0.14 g HC.tplbond.CC.tplbond.C(CH<sub>2</sub>)8CO<sub>2</sub>H (I). A Langmuir-Blodgett membrane prepared from I was UV-irradiated to form a pattern with the irradiated portion insol. in EtOH.

IT 122681-60-1P 122681-61-2P

(preparation and reaction of, with iodine)

RN 122681-60-1 HCAPLUS

CN Cuprate(1-), (10-carboxylato-1-decynyl)-, hydrogen (9CI) (CA INDEX NAME)



RN 122681-61-2 HCAPLUS

CN Cuprate(1-), (12-carboxylato-1-dodecynyl)-, hydrogen (9CI) (CA INDEX NAME)



IC ICM C08F038-00  
 CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 35, 38  
 IT 122681-60-1P 122681-61-2P  
 (preparation and reaction of, with iodine)

L18 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1989:523846 HCAPLUS Full-text  
 DOCUMENT NUMBER: 111:123846  
 ORIGINAL REFERENCE NO.: 111:20595a, 20598a  
 TITLE: Pattern formation method with acetylenic derivatives  
 INVENTOR(S): Ikeda, Yukihiro; Ozaki, Masaru  
 PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01073339	A	19890317	JP 1987-228353	19870914
PRIORITY APPLN. INFO.:			JP 1987-228353	19870914

ED Entered STN: 01 Oct 1989  
 AB Monomol. layers of HC.tplbond.CC.tplbond.C(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>H (n = 8-22) are spread on aqueous solns. of 2-4-valent metal ions, and thin film formed by transfer of these layers to substrate surface is patterned by active radiations. This method provides highly photosensitive layers. Thus, Me 10-undecynoate was treated with CuI and with I<sub>2</sub> to obtain 11-iodo-10-undecynoic acid, and of which solution in MeOH was slowly added to a mixture of propynic acid, CuCl and EtNH<sub>2</sub> to obtain HOCOC.tplbond.C C.tplbond.C(CH<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>Me, which was decarboxylated and hydrolyzed to yield 10,12-tridecadiynoic acid (I). CHCl<sub>3</sub> solution of I was spread on the surface of 0.5 mM CdCl<sub>2</sub> solution, and the monomol. layer was transferred to surface of Si wafer. A layer obtained by accumulation of 69 monolayers was patternwise exposed to UV (100-W lamp, 10 cm distance, 5 min) and developed with EtOH to obtain a neg. pattern. Conductivity of this layer doped with I was 2+10<sup>-3</sup> S/cm.  
 IT 122370-95-0P  
 (preparation and reaction of, with iodine, pattern-forming material from)  
 RN 122370-95-0 HCAPLUS  
 CN Copper, (8-carboxy-1-decynyl)- (9CI) (CA INDEX NAME)





IC ICM G03C001-68  
 ICS G03C001-74; G03F007-16  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 IT 122370-95-0P 122370-98-3P  
 (preparation and reaction of, with iodine, pattern-forming material  
 from)

L18 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 1989:505818 HCAPLUS Full-text

DOCUMENT NUMBER: 111:105818

ORIGINAL REFERENCE NO.: 111:17643a,17646a

TITLE: Monosubstituted diacetylene compounds for  
 electrically conductive polymers and resist  
 materials

INVENTOR(S): Ikeda, Yukihiro; Ozaki, Masaru

PATENT ASSIGNEE(S): Agency of Industrial Sciences and Technology,  
 Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01071837	A	19890316	JP 1987-228351	19870914
JP 02050094	B	19901101		
PRIORITY APPLN. INFO.:			JP 1987-228351	19870914

ED Entered STN: 16 Sep 1989

AB The HC.tplbond.CC.tplbond.C(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>H (I; n = 8-18), useful as materials for  
 conductive polymers and photoresists, are prepared Thus, esterification of 11  
 mmol HC.tplbond.C(CH<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>H with MeOH in the presence of p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H gave a  
 Me ester, which was treated with CuI in aqueous NH<sub>3</sub> and then with iodine to  
 give 6.5 mmol IC.tplbond.C(CH<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>H (II). Then, coupling of 6.5 mmol II with  
 6.5 mmol HC.tplbond.CCO<sub>2</sub>H in MeOH gave  
 HO<sub>2</sub>CC.tplbond.CC.tplbond.C(CH<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>Me, which was decarboxylated by refluxing  
 in dioxane in the presence of Cu and then hydrolyzed in aqueous NaOH to give  
 0.68 mmol I (n = 8) (III). A Langmuir-Blodgett film prepared from III was  
 mounted on a Si wafer, irradiated through a mask, and developed to form neg.  
 patterns.

IT 122370-95-0P

(preparation and iodination of, photoresist material from)

RN 122370-95-0 HCAPLUS

CN Copper, (8-carboxy-1-decynyl)- (9CI) (CA INDEX NAME)



IC ICM C07C057-18

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)

Section cross-reference(s): 23, 76

IT 122370-95-QP

(preparation and iodination of, photoresist material from)

L18 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1980:156929 HCAPLUS Full-text

DOCUMENT NUMBER: 92:156929

ORIGINAL REFERENCE NO.: 92:25315a,25318a

TITLE: A copper(I)-bicarbonato complex. A water-stable

reversible carbon dioxide carrier

AUTHOR(S): Tsuda, Tetsuo; Chujo, Yoshiki; Saegusa, Takeo

CORPORATE SOURCE: Fac. Eng., Kyoto Univ., Kyoto, Japan

SOURCE: Journal of the American Chemical Society (1980),  
102(1), 431-3

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 May 1984

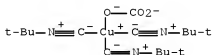
AB A Cu(I) bicarbonato-complex was prepared by 3 routes: (i) hydrolysis of a Cu(I) alkylcarbonato-complex; (ii) hydrolytic carboxylation of a Cu(I) carbonato-complex; and (iii) carboxylation of a Cu(I) hydroxo-complex. The methods of (i) and (ii) are novel for the preparation of the transition metal bicarbonato-complex. The relation of interconversions among these Cu(I) complexes gives useful information about the chemical of transition metal bicarbonato-complexes. The Cu(I) bicarbonato-complex is soluble and reversibly decarboxylates both in organic solvents and in H<sub>2</sub>O. The Cu(I) bicarbonato-complex acts as a H<sub>2</sub>O-stable reversible CO<sub>2</sub> carrier to carboxylate cyclohexanone even in the presence of a nearly stoichiometric amount of H<sub>2</sub>O.

IT 73202-89-8P

(preparation and carboxylation of cyclohexanone and propylene oxide by)

RN 73202-89-8 HCAPLUS

CN Cuprate(1-), [carbonato(2-)-O]tris(2-isocyno-2-methylpropane)-,  
hydrogen, (I-4)- (9CI) (CA INDEX NAME)



CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 7, 21

IT 73202-89-8P

(preparation and carboxylation of cyclohexanone and propylene oxide by)

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS  
RECORD (10 CITINGS)

L18 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1974:48128 HCAPLUS Full-text

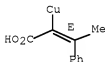
DOCUMENT NUMBER: 80:48128

ORIGINAL REFERENCE NO.: 80:7849a,7852a

TITLE: Two different structures for copper and lithium  
derivatives of vinylic enolates. Effect of  
structure on the direction of electrophilic attack

AUTHOR(S): Klein, Joseph; Levene, Raphael  
 CORPORATE SOURCE: Dep. Org. Chem., Heb. Univ. Jerusalem, Jerusalem, Israel  
 SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1973), (14), 1971-8  
 CODEN: JCPKBH; ISSN: 0300-9580  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 12 May 1984  
 AB Cu vinylic enolates, e.g. PhCMe:C(Cu)CO<sub>2</sub>Me, prepared from  $\alpha,\beta$ -acetylenic acids and esters by treatment with R<sub>2</sub>CuLi (R = Me, Ph), and from 2-bromo unsatd. esters by treatment with Me<sub>2</sub>CuLi, have the Cu linked covalently to an sp<sup>2</sup> hybridized C atom  $\alpha$  to the carbonyl group. Protonolysis or iodination proceeds with retention of configuration. The Li vinylic enolates, e.g. PhCMe:C:C(OLi)OMe, prepared by adding MeLi in Et<sub>2</sub>O to THF solns. of the Cu derivs., have the  $\alpha$ -C sp hybridized, and gave mixts. of isomers under the same conditions. The results are explained in terms of differing  $\alpha$ -carbon hybridizations having differing effect on the path of electrophilic attack.  
 IT 51474-58-9 51474-59-0  
 (protonolysis and iodination of)  
 RN 51474-58-9 HCAPLUS  
 CN Copper, (1-carboxy-2-phenyl-1-propenyl)-, copper(1+) salt, (E)- (9CI)  
 (CA INDEX NAME)

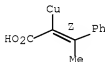
Double bond geometry as shown.



● Cu(I)

RN 51474-59-0 HCAPLUS  
 CN Copper, (1-carboxy-2-phenyl-1-propenyl)-, copper(1+) salt, (Z)- (9CI)  
 (CA INDEX NAME)

Double bond geometry as shown.



● Cu(I)

CC 29-9 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 22  
 IT 51384-68-0 51384-69-1 51384-70-4 51384-71-5 51384-72-6

10/583,103

51474-56-7    51474-57-8    51474-58-9    51474-59-0  
51474-60-3    51474-61-4    51474-62-5    51474-63-6    51474-64-7  
51474-65-8

(protonolysis and iodination of)

OS.CITING REF COUNT:    17    THERE ARE 17 CAPLUS RECORDS THAT CITE THIS  
RECORD (17 CITINGS)

=&gt; d que l19

L4 STR



VAR G1=3/5/7/9/10

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

L6 10858 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 64-18-6/CRN

L7 4228 SEA FILE=REGISTRY SSS FUL L4

L11 5829 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L7

L12 15157 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L6

L13 27 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L11 AND L12

L14 STR

COOH 1

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE

L16 27 SEA FILE=REGISTRY SUB=L7 SSS FUL L14

L18 9 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16

L19 26 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L13 NOT L18

=&gt; d l19 1-26 ibib ed abs hitstr hitind

L19 ANSWER 1 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:994680 HCAPLUS Full-text

DOCUMENT NUMBER: 149:307077

TITLE: Allene

AUTHOR(S): Crimmins, Michael T.; Pulido, Francisco J.;

Castreno, Pilar; Barbero, Asuncion

CORPORATE SOURCE: USA

SOURCE: e-EROS Encyclopedia of Reagents for Organic  
Synthesis (2001), No pp. given. John Wiley &  
Sons, Ltd.: Chichester, UK.

CODEN: 69KUHI

URL:

<http://www3.interscience.wiley.com/cgi-bin/mrwhome/104554785/HOME>

DOCUMENT TYPE: Conference; General Review; (online computer file)

LANGUAGE: English

OTHER SOURCE(S): CASREACT 149:307077

ED Entered STN: 19 Aug 2008

AB A review of the article Allene.

IT 540-69-2 123347-37-5

(Allene)

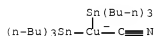
RN 540-69-2 HCAPLUS

CN Formic acid, ammonium salt (1:1) (CA INDEX NAME)



RN 123347-37-5 HCAPLUS

CN Cuprate(2-), (cyano-kC)bis(tributylstannyl)-, lithium (1:2) (CA INDEX NAME)



CC 21-0 (General Organic Chemistry)

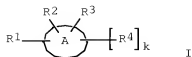
IT 64-18-6, Formic acid, reactions 67-56-1, Methanol, reactions  
 74-88-4, reactions 75-07-0, Acetaldehyde, reactions 75-11-6  
 75-21-8, Oxirane, reactions 75-36-5, Acetyl chloride 77-47-4  
 78-94-4, 3-Buten-2-one, reactions 100-46-9, Benzenemethanamine,  
 reactions 100-66-3, reactions 106-95-6, reactions 108-59-8  
 109-70-6 119-61-9, reactions 124-38-9, Carbon dioxide, reactions  
 143-66-8 533-58-4 540-69-2 542-92-7,  
 1,3-Cyclopentadiene, reactions 591-50-4 598-25-4 610-97-9  
 629-27-6 630-08-0, Carbon monoxide, reactions 768-03-6 892-20-6  
 920-37-6 930-68-7, 2-Cyclohexen-1-one 993-63-5 1076-38-6  
 1193-18-6 1489-28-7 2177-34-6 2327-99-3 2816-43-5 3437-95-4  
 4282-40-0 5557-87-9, 3,4-Pentadien-1-ol 23431-36-9,  
 4,5-Hexadien-2-ol 27667-34-1 32042-39-0 34837-55-3,  
 Benzeneselenenyl bromide 40339-21-7 52629-63-7, 1,2-Tridecadiene  
 59253-90-6, 1-Cyclopentene-1-carbonyl chloride 61613-20-5  
 75405-41-3 80110-06-1 80953-80-6 120086-07-9  
 123347-37-5 123994-49-0 124482-30-0 189078-68-0  
 203577-52-0 203731-15-1 223239-83-6 229494-03-5,  
 5,6-Heptadienenitrile 229494-04-6 260554-38-9 357979-51-2  
 582305-28-0

(Allene)

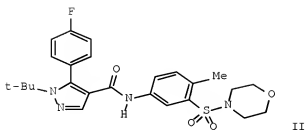
L19 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2007:510466 HCAPLUS Full-text  
 DOCUMENT NUMBER: 146:501048  
 TITLE: Preparation of heterocyclic amide compounds as FXR inhibitors  
 INVENTOR(S): Miura, Shotaro; Shimada, Mitsuyuki; Marui, Shogo; Tamura, Norikazu; Nakada, Yoshihisa; Tozawa, Ryuichi; Sakamoto, Junichi; Funabashi, Yasunori; Hosono, Hiroshi  
 PATENT ASSIGNEE(S): Takeda Pharmaceutical Company Limited, Japan  
 SOURCE: PCT Int. Appl., 1320pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007052843	A1	20070510	WO 2006-JP322420	20061102
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
JP 2008094826	A	20080424	JP 2007-116246	20070425
PRIORITY APPLN. INFO.:			JP 2005-321600	A 20051104
			JP 2006-251883	A 20060915

OTHER SOURCE(S): MARPAT 146:501048  
 ED Entered STN: 11 May 2007  
 GI



I



II

AB Title compds. I [ring A = aromatic heterocycle; R1, R2 = (un)substituted alkyl, (un)substituted alkylthio, (un)substituted alkylsulfonyl, etc.; R3 = -CONH-(CR6R7)n-Ar-(X)1-(Y)m-R; Ar = (un)substituted divalent cyclic group; X = (un)substituted alkylene, (un)substituted alkenylene; Y = -SO2-, -SO-, -S-, etc.; R = H, (un)substituted cyclic group, (un)substituted amino, etc.; R6, R7 = H, alkyl; l, m, n = 0, 1; R3 is bonded to carbon in ring A; R4 = H, (un)substituted alkyl, cyano, etc.; k = 0, 1], salts or prodrugs thereof were prepared. For example, treatment of 1-tert-butyl-5-(4-fluorophenyl)-1H-pyrazole-4-carboxylic acid, e.g., prepared from (p-fluorobenzoyl)acetic acid Et ester in 2 steps, with oxalyl chloride followed by reaction with 4-methyl-3-(morpholin-4-ylsulfonyl)aniline afforded compound II. In FXR (farnesoid X receptor) inhibition assays, the IC50 value of compound II was 0.57 nM. Of note, compds. I are useful for the treatment of hyperlipidemia, atherosclerosis, etc.

IT 936118-58-0P 936118-60-4P 936118-62-0P  
936118-84-2P 936118-86-4P

(preparation of heterocyclic amide compds. as FXR inhibitors)

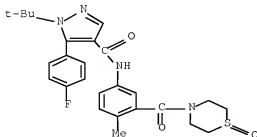
RN 936118-58-0 HCAPLUS

CN Formic acid, compd. with 1-(1,1-dimethylethyl)-5-(4-fluorophenyl)-N-[4-methyl-3-[(1-oxido-4-thiomorpholinyl)carbonyl]phenyl]-1H-pyrazole-4-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 936118-57-9

CMF C26 H29 F N4 O3 S





CM 2

CRN 64-18-6

CMF C H2 O2

O=CH-OH

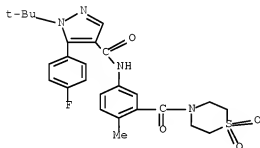
RN 936118-60-4 HCAPLUS

CN Formic acid, compd. with 1-(1,1-dimethylethyl)-N-[3-[(1,1-dioxido-4-thiomorpholinyl)carbonyl]-4-methylphenyl]-5-(4-fluorophenyl)-1H-pyrazole-4-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 936118-59-1

CMF C26 H29 F N4 O4 S



CM 2

CRN 64-18-6

CMF C H2 O2

O=CH-OH

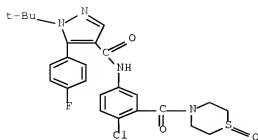
RN 936118-82-0 HCAPLUS

CN Formic acid, compd. with N-[4-chloro-3-[(1-oxido-4-thiomorpholinyl)carbonyl]phenyl]-1-(1,1-dimethylethyl)-5-(4-fluorophenyl)-1H-pyrazole-4-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 936118-81-9

CMF C25 H26 Cl F N4 O3 S



CM 2

CRN 64-18-6

CMF C H2 O2



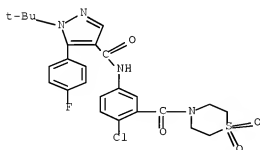
RN 936118-84-2 HCAPLUS

CN Formic acid, compd. with N-[4-chloro-3-[(1,1-dioxido-4-thiomorpholinyl)carbonyl]phenyl]-1-(1,1-dimethylethyl)-5-(4-fluorophenyl)-1H-pyrazole-4-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 936118-83-1

CMF C25 H26 Cl F N4 O4 S



CM 2

CRN 64-18-6

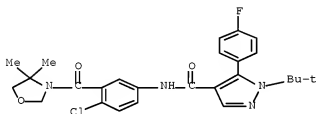
CMF C H2 O2



RN 936118-86-4 HCAPLUS  
 CN Formic acid, compd. with N-[4-chloro-3-[(4,4-dimethyl-3-oxazolidinyl)carbonyl]phenyl]-1-(1,1-dimethylethyl)-5-(4-fluorophenyl)-1H-pyrazole-4-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 936118-85-3  
 CMF C26 H28 Cl F N4 O3



CM 2

CRN 64-18-6  
 CMF C H2 O2



IT 544-92-3, Copper cyanide (Cu(CN))  
 (preparation of heterocyclic amide compds. as FXR inhibitors)  
 RN 544-92-3 HCAPLUS  
 CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))  
 Section cross-reference(s): 1, 63  
 IT 936117-98-5P 936117-99-6P 936118-00-2P 936118-01-3P  
 936118-02-4P 936118-03-5P 936118-05-7P 936118-07-9P  
 936118-10-4P 936118-11-5P 936118-12-6P 936118-15-9P  
 936118-17-1P 936118-19-3P 936118-20-6P 936118-22-8P  
 936118-23-9P 936118-24-0P 936118-25-1P 936118-26-2P

936118-29-5P	936118-30-8P	936118-31-9P	936118-33-1P
936118-34-2P	936118-35-3P	936118-36-4P	936118-38-6P
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(preparation of heterocyclic amide compds. as FXR inhibitors)

IT 60-34-4 62-53-3, Benzenamine, reactions 62-55-5, Thioacetamide  
64-04-0, Benzeneethanamine 67-56-1, Methanol, reactions 70-23-5,  
3-Bromo-2-oxopropanoic acid ethyl ester 74-88-4, reactions

74-89-5, Methanamine, reactions 75-03-6, Iodoethane 75-16-1  
 75-30-9, 2-Iodopropane 75-36-5, Acetyl chloride 75-89-8,  
 2,2,2-Trifluoroethanol 79-04-9, Chloroacetyl chloride 83-38-5,  
 2,6-Dichlorobenzaldehyde 89-54-3 89-98-5, 2-Chlorobenzaldehyde  
 92-54-6 94-02-0 94-52-0, 5-Nitrobenzimidazole 98-74-8,  
 4-Nitrobenzenesulfonyl chloride 98-80-6, Phenylboronic acid  
 99-04-7, 3-Methylbenzoic acid 99-08-1 99-94-5, 4-Methylbenzoic  
 acid 99-96-7, reactions 100-00-5 100-39-0, Benzyl bromide  
 100-52-7, Benzaldehyde, reactions 100-60-7 103-63-9,  
 (2-Bromoethyl)benzene 103-80-0, Phenylacetyl chloride 105-36-2  
 106-95-6, reactions 107-21-1, 1,2-Ethanedithiol, reactions 108-24-7  
 108-91-8, Cyclohexanamine, reactions 108-98-5, Benzenethiol,  
 reactions 109-01-3 109-04-6 110-89-4, Piperidine, reactions  
 110-91-8, Morpholine, reactions 116-54-1, Dichloroacetic acid methyl  
 ester 118-90-1, 2-Methylbenzoic acid 118-91-2, 2-Chlorobenzoic  
 acid 119-32-4 119-36-8, Salicylic acid methyl ester 121-02-8  
 121-51-7 122-01-0, 4-Chlorobenzoyl chloride 123-75-1, Pyrrolidine,  
 reactions 123-90-0, Thiomorpholine 124-38-9, Carbon dioxide,  
 reactions 124-63-0, Methanesulfonyl chloride 140-88-5 141-43-5,  
 2-Aminoethanol, reactions 141-91-3 319-03-9 352-60-3,  
 1,1,1-Trifluoro-5-iodopentane 371-14-2, 4-Fluorophenylhydrazine  
 372-48-5, 2-Fluoropyridine 403-29-2,  
 2-Bromo-1-(4-fluorophenyl)ethanone 406-81-5,  
 1,1,1-Trifluoro-4-bromobutane 407-25-0, Trifluoroacetic anhydride  
 407-66-9, Methanesulfonic acid 5-fluoropentyl ester 445-29-4,  
 2-Fluorobenzoic acid 455-38-9, 3-Fluorobenzoic acid 455-88-9  
 456-22-4 459-57-4, 4-Fluorobenzaldehyde 462-72-6,  
 4-Bromo-1-fluorobutane 504-29-0, 2-Pyridinamine 541-41-3  
 544-92-3, Copper cyanide (Cu(CN)) 563-83-7,  
 2-Methylpropanamide 582-33-2, 3-Aminobenzoic acid ethyl ester  
 587-04-2, 3-Chlorobenzaldehyde 588-63-6, (3-Bromopropoxy)benzene  
 600-00-0 616-47-7 616-83-1 622-26-4, 2-(Piperidin-4-yl)ethanol  
 630-17-1, Neopentyl bromide 635-46-1 637-59-2,  
 (3-Bromopropyl)benzene 640-19-7, 2-Fluoroacetamide 643-28-7  
 645-45-4, 3-Phenylpropanoyl chloride 754-10-9, Fivalamide  
 765-30-0, Cyclopropanamine 771-99-3 867-13-0 870-46-2 873-55-2  
 925-90-6, Ethylmagnesium bromide 927-74-2, 3-Butyn-1-ol 1006-41-3  
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 [(2-Bromoethoxy)methyl]benzene 1489-69-6, Cyclopropanecarboxaldehyde  
 1571-08-0 1583-58-0 1679-64-7, Terephthalic acid monomethyl ester  
 1692-15-5, 4-Pyridineboronic acid 1692-25-7, 3-Pyridineboronic acid  
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 4-Fluorophenylboronic acid 1975-52-6 1999-00-4 2038-57-5,  
 Benzenepropanamine 2215-77-2, 4-Phenoxybenzoic acid 2227-79-4,  
 Benzenecarbothioamide 2257-52-5 2417-72-3, 4-(Bromomethyl)benzoic  
 acid methyl ester 2516-95-2, 5-Chloro-2-nitrobenzoic acid  
 2516-96-3 2567-29-5, 4-(Bromomethyl)biphenyl 2719-27-9,  
 Cyclohexanecarbonyl chloride 2746-25-0, 4-Methoxybenzyl bromide  
 2832-19-1, N-Hydroxymethyl-2-chloroacetamide 2835-78-1 2881-83-6,  
 3-(4-Methoxyphenyl)-3-oxopropionic acid ethyl ester 2965-22-2,  
 2-Fluoro-5-nitrobenzoic acid methyl ester 2969-81-5, 4-Bromobutanoic  
 acid ethyl ester 2975-41-9, 2-Aminoindane 3034-53-5 3040-44-6,  
 2-(Piperidin-1-yl)ethanol 3202-34-4, 4-(4-Fluorophenoxy)piperidine  
 hydrochloride 3471-32-7, 4-Methoxyphenylhydrazine 3586-12-7  
 3724-10-5, 2-Methylthiobenzoic acid 3888-65-1 4031-84-9,  
 5-Amino-2-(morpholin-4-yl)benzoic acid methyl ester 4045-30-1  
 4334-88-7, 4-Ethoxycarbonylphenylboronic acid 4375-15-9,  
 3-Methylindoline 4405-28-1, 2-(Dimethylamino)-5-nitrobenzoic acid  
 4621-66-3, 3-Pyridinecarbothioamide 4637-24-5 4769-96-4,  
 6-Nitroindole 4894-75-1, 4-Phenylcyclohexanone 4897-50-1,

1,4'-Bipiperidine 4930-98-7, 2-Hydrazinopyridine 5000-65-7,  
 2-Bromo-1-(3-methoxyphenyl)ethanone 5004-07-9 5118-06-9,  
 3-Hydroxythiophene-2-carboxylic acid methyl ester 5331-43-1  
 5332-06-9, 4-Bromobutyronitrile 5382-16-1, 4-Piperidinol  
 5414-21-1, 5-Bromovaleronitrile 5428-54-6 5466-84-2,  
 4-Nitrophthalic anhydride 5469-26-1, 1-Bromopinacolone 5625-67-2,  
 2-Piperazinone 5720-07-0, 4-Methoxyphenylboronic acid 5798-75-4,  
 4-Bromobenzoic acid ethyl ester 6148-64-7 6361-21-3 6457-49-4,  
 4-Piperidinemethanol 6498-34-6 6638-79-5,  
 N,O-Dimethylhydroxylamine hydrochloride 6872-06-6, 2-Methylindoline  
 6942-36-5, 2-Bromo-5-nitrobenzoic acid methyl ester 6945-92-2,  
 Hydrazinoacetic acid ethyl ester hydrochloride 7304-32-7,  
 2-Fluoro-5-nitrobenzoic acid 7400-27-3 7597-18-4, 6-Nitroindazole  
 7745-93-9 7803-49-8, Hydroxylamine, reactions 13214-66-9,  
 Benzenebutanamine 13258-63-4, 4-Pyridineethanamine 13331-27-6  
 13349-82-1, 2-[(2-Piperazin-1-yl)ethoxy]ethanol 13506-76-8,  
 2-Methyl-6-nitrobenzoic acid 13633-25-5, (4-Bromobutyl)benzene  
 14199-15-6, 4-Hydroxyphenylacetic acid methyl ester 14469-83-1,  
 (5-Bromopentyl)benzene 14752-66-0 15014-25-2 15097-38-8,  
 (Triphenylphosphoranylidene)acetic acid benzyl ester 16574-53-1,  
 (4-Fluorophenyl)(3-nitrophenyl)methanone 16588-02-6 16732-57-3  
 17302-46-4, 2-Hydroxy-5-nitrobenzoic acid methyl ester 18197-26-7,  
 Diformylimide sodium salt 18202-73-8, tert-Butylcarbamidic  
 hydrochloride 18735-78-9, 2,5-Diphenyl-1,3-oxazole-4-carboxylic acid  
 19099-93-5, 4-Oxo-1-piperidinecarboxylic acid benzyl ester  
 19438-10-9, 3-Hydroxybenzoic acid methyl ester 19727-83-4,  
 6-Nitroindoline 20173-24-4, 3-Pyridineethanamine 20295-34-5,  
 Cyclopropanecarbothioamide 22027-53-8, (p-Chlorobenzoyl)acetic acid  
 methyl ester 24424-99-5 25542-62-5, 6-Bromohexanoic acid ethyl  
 ester 26377-17-3, 3-Oxo-3-(pyridin-4-yl)propanoic acid ethyl ester  
 27976-27-8, (6-Bromohexyl)benzene 29263-94-3 31431-17-1,  
 (4-Chloro-3-nitrophenyl)(4-chlorophenyl)methanone 33577-16-1  
 34052-37-4 34461-00-2, (1-Formyl-1-nitro-2-oxoethyl)sodium  
 34841-11-7, 2-Methoxy-5-nitrobenzoic acid methyl ester 35794-11-7  
 38947-57-8, 2,6-Diphenylisonicotinic acid 39139-52-1,  
 4-Benzylpiperazin-1-amine 40353-34-2 40807-61-2 41087-88-1,  
 Malonic acid monobenzyl ester potassium salt 43032-38-8 50461-56-8  
 50461-59-1 51135-96-7 51200-87-4 54950-20-8,  
 3-Oxo-3-(pyridin-3-yl)propanoic acid methyl ester 55552-70-0,  
 3-Furylboronic acid 56071-61-5, 1,2-Diphenyl-1H-pyrrole-3-carboxylic  
 acid methyl ester 56077-28-2, 2-Bromo-1-cyclohexylethanone  
 56741-34-5 57395-89-8, 4-Fluoropiperidine hydrochloride  
 58885-60-2, tert-Butyl (3-oxopropyl)carbamate 59184-90-6  
 61424-26-8 63234-71-9 64401-55-4, 5-Amino-2-chlorobenzoic acid  
 ethyl ester 64688-68-2 65826-95-1, 5-Methylindoline 67367-24-2,  
 4-Hydroxynicotinic acid methyl ester 67706-68-7,  
 4-[(tert-Butoxycarbonyl)amino]-3-oxobutanoic acid ethyl ester  
 69555-14-2, Ethyl N-(diphenylmethylene)glycinate 73121-95-6  
 73579-08-5 73874-95-0 75178-96-0, (3-Aminopropyl)carbamidic  
 acid tert-butyl ester 76513-69-4, 2-(Trimethylsilyl)ethoxymethyl chloride  
 77169-12-1, 1,3-Diphenyl-1H-pyrazole-4-carboxylic acid 77643-63-1,  
 1-Benzyl-2-phenyl-1H-pyrrole-3-carboxylic acid methyl ester  
 (preparation of heterocyclic amide compds. as FXR inhibitors)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS  
 RECORD (3 CITINGS)

REFERENCE COUNT: 83 THERE ARE 83 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

ACCESSION NUMBER: 2005:612302 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:133366  
 TITLE: Indoles, 1H-indazoles, 1,2-benzisoxazoles, and  
 1,2-benzisothiazoles, and preparation and uses  
 thereof  
 INVENTOR(S): Xie, Wenge; Herbert, Brian; Ma, Jianguo; Nguyen,  
 Truc Minh; Schumacher, Richard A.; Gauss,  
 Carla-Maria; Tehim, Ashok  
 PATENT ASSIGNEE(S): Memory Pharmaceuticals Corporation, USA  
 SOURCE: PCT Int. Appl., 108 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005063767	A2	20050714	WO 2004-US42852	20041222
WO 2005063767	A3	20050825		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2004309367	A1	20050714	AU 2004-309367	20041222
CA 2550689	A1	20050714	CA 2004-2550689	20041222
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US 7396833	B2	20080708		
EP 1697378	A2	20060906	EP 2004-814981	20041222
EP 1697378	B1	20071121		
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CN 1918167	A	20070221	CN 2004-80041966	20041222
BR 2004017323	A	20070327	BR 2004-17323	20041222
JP 2007515424	T	20070614	JP 2006-545564	20041222
PT 1697378	E	20080228	PT 2004-814981	20041222
ES 2295973	T3	20080416	ES 2004-814981	20041222
SG 149830	A1	20090227	SG 2009-253	20041222
NZ 548228	A	20090430	NZ 2004-548228	20041222
IN 2006DN03547	A	20070831	IN 2006-DN3547	20060620
KR 2006120694	A	20061127	KR 2006-712319	20060621
ZA 2006005122	A	20071227	ZA 2006-5122	20060621
MX 2006007168	A	20060907	MX 2006-7168	20060622
NO 2006003392	A	20060921	NO 2006-3392	20060721
US 20090088437	A1	20090402	US 2008-128839	20080529
PRIORITY APPLN. INFO.:			US 2003-530891P	P 20031222
			US 2004-606897P	P 20040903
			US 2004-18429	A3 20041222

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): CASREACT 143:133366; MARPAT 143:133366

ED Entered STN: 15 Jul 2005

AB The present invention relates generally to the field of ligands for nicotinic acetylcholine receptors (nAChR), activation of nAChRs, and the treatment of disease conditions associated with defective or malfunctioning nicotinic acetylcholine receptors, especially of the brain. Further, this invention relates to novel compds. for example, indoles, 1H-indazoles, 1,2-benzisoxazoles, and 1,2-benzisothiazoles, which act as ligands for the  $\alpha 7$  nAChR subtype, methods of preparing such compds., compns. containing such compds., and methods of use thereof.

IT 858659-97-9P, 3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858659-99-1P,  
6-[(1,3-Thiazol-2-yl)]-3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858660-01-2P  
858660-03-4P 858660-05-6P 858660-07-8P  
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858660-22-7P 858660-24-9P 858660-26-1P  
858660-28-3P 858660-30-7P 858660-32-9P  
858660-34-1P 858660-36-3P 858660-38-5P  
858660-40-9P 858660-43-2P,  
5-Methoxy-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858660-47-6P 858660-49-8P  
858660-51-2P 858660-54-5P 858660-56-7P  
858660-59-0P, 6-Methoxy-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate  
858660-61-4P 858660-65-8P 858660-67-0P  
858660-70-5P 858660-72-7P 858660-74-9P  
858660-76-1P 858660-78-3P 858660-80-7P  
858660-82-9P 858660-84-1P 858660-86-3P  
858660-88-5P 858660-90-9P 858660-92-1P  
858660-95-4P 858660-98-7P 858661-00-4P  
858661-02-6P 858661-04-8P 858661-09-3P  
, 3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-5-(N,N-dimethylamino)-1H-indazole hydroformate 858661-11-7P  
858661-13-9P 858661-16-2P 858661-18-4P  
858661-21-9P 858661-23-1P 858661-25-3P  
858661-29-7P, N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]cyclopropanecarboxamide hydroformate  
858661-31-1P, N-[1-(Cyclopropylcarbonyl)-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]cyclopropanecarboxamide hydroformate 858661-33-3P  
858661-35-5P 858661-37-7P,  
3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-N-propyl-5-[[[(propylamino)carbonyl]amino]-1H-indazole-1-carboxamide hydroformate  
858661-39-9P 858661-41-3P,  
N-(4-Fluorobenzyl)-5-[[[(4-fluorobenzyl)amino]carbonyl]amino]-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide hydroformate 858661-43-5P  
858661-45-7P, N-Cyclopentyl-5-[[[(cyclopentylamino)carbonyl]amino]-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide hydroformate 858661-47-9P,  
N-(4-Fluorobenzyl)-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea hydroformate 858661-49-1P  
, N'-Propyl-N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]-urea hydroformate 858661-51-5P,  
N-Cyclopentyl-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-



yl)carbonyl]-1H-indazol-5-yl]urea hydroformate  
 (drug candidate; indoles, 1H-indazoles, 1,2-benzisoxazoles, and  
 1,2-benzisothiazoles preparation and use as  $\alpha 7$  nicotinic receptor  
 ligands for treating various nervous system diseases)

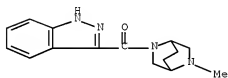
RN 858659-97-9 HCAPLUS

CN Formic acid, compd. with 1H-indazol-3-yl(5-methyl-2,5-  
 diazabicyclo[2.2.2]oct-2-yl)methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858659-96-8

CMF C15 H18 N4 O



CM 2

CRN 64-18-6

CMF C H2 O2



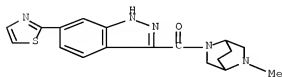
RN 858659-99-1 HCAPLUS

CN Formic acid, compd. with (5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)[6-  
 (2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858659-98-0

CMF C18 H19 N5 O S



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-01-2 HCAPLUS

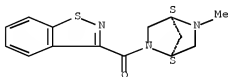
CN Formic acid, compd. with 1,2-benzisothiazol-3-yl[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-00-1

CMF C14 H15 N3 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-03-4 HCAPLUS

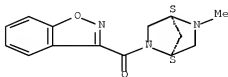
CN Formic acid, compd. with 1,2-benzisoxazol-3-yl[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-02-3

CMF C14 H15 N3 O2

Absolute stereochemistry.



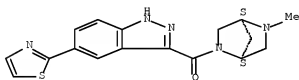
CM 2  
 CRN 64-18-6  
 CMF C H2 O2



RN 858660-05-6 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1  
 CRN 858660-04-5  
 CMF C17 H17 N5 O S

Absolute stereochemistry.



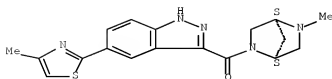
CM 2  
 CRN 64-18-6  
 CMF C H2 O2



RN 858660-07-8 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(4-methyl-2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1  
 CRN 858660-06-7  
 CMF C18 H19 N5 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-13-6 HCAPLUS

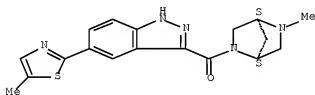
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(5-methyl-2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-12-5

CMF C18 H19 N5 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-18-1 HCAPLUS

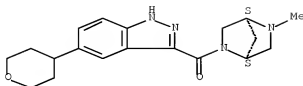
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(tetrahydro-2H-pyran-4-yl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-17-0

CMF C19 H24 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-20-5 HCAPLUS

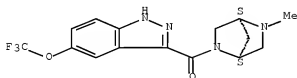
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(trifluoromethoxy)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-19-2

CMF C15 H15 F3 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2

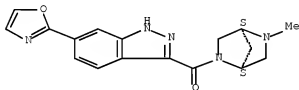


RN 858660-22-7 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(2-oxazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-21-6  
 CMF C17 H17 N5 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

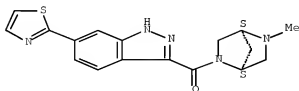


RN 858660-24-9 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-23-8  
 CMF C17 H17 N5 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-26-1 HCAPLUS

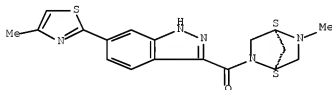
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(4-methyl-2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-25-0

CMF C18 H19 N5 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-28-3 HCAPLUS

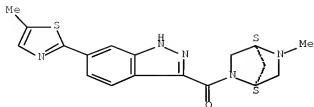
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(5-methyl-2-thiazolyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-27-2

CMF C18 H19 N5 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-30-7 HCAPLUS

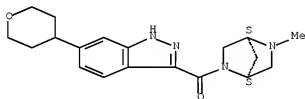
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(tetrahydro-2H-pyran-4-yl)-1H-indazol-3-yl]methanone (1:1)  
(CA INDEX NAME)

CM 1

CRN 858660-29-4

CMF C19 H24 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-32-9 HCAPLUS



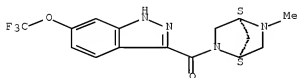
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(trifluoromethoxy)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-31-8

CMF C15 H15 F3 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-34-1 HCAPLUS

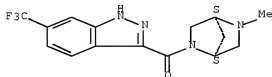
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(trifluoromethyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-33-0

CMF C15 H15 F3 N4 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2

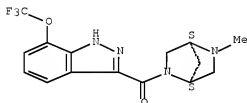


RN 858660-36-3 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][7-(trifluoromethoxy)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-35-2  
 CMF C15 H15 F3 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

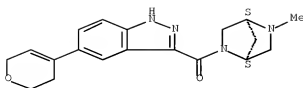


RN 858660-38-5 HCAPLUS  
 CN Formic acid, compd. with [5-(3,6-dihydro-2H-pyran-4-yl)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-37-4  
 CMF C19 H22 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-40-9 HCAPLUS

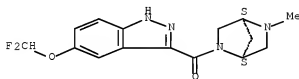
CN Formic acid, compd. with [5-(difluoromethoxy)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-39-6

CMF C15 H16 F2 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



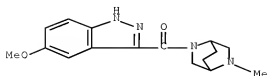
RN 858660-43-2 HCAPLUS

CN Formic acid, compd. with (5-methoxy-1H-indazol-3-yl) (5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-42-1

CMF C16 H20 N4 O2



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-47-6 HCAPLUS

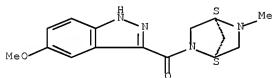
CN Formic acid, compd. with (5-methoxy-1H-indazol-3-yl) [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-46-5

CMF C15 H18 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



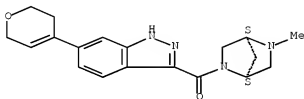
RN 858660-49-8 HCAPLUS  
 CN Formic acid, compd. with [6-(3,6-dihydro-2H-pyran-4-yl)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-48-7

CMF C19 H22 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



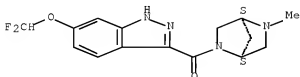
RN 858660-51-2 HCAPLUS  
 CN Formic acid, compd. with [6-(difluoromethoxy)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-50-1

CMF C15 H16 F2 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
CMF C H2 O2

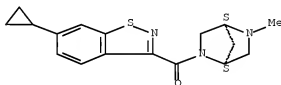


RN 858660-54-5 HCAPLUS  
CN Formic acid, compd. with (6-cyclopropyl-1,2-benzisothiazol-3-yl) [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-53-4  
CMF C17 H19 N3 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6  
CMF C H2 O2

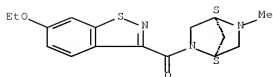


RN 858660-56-7 HCAPLUS  
CN Formic acid, compd. with (6-ethoxy-1,2-benzisothiazol-3-yl) [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-55-6  
CMF C16 H19 N3 O2 S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



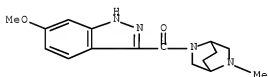
RN 858660-59-0 HCAPLUS

CN Formic acid, compd. with (6-methoxy-1H-indazol-3-yl)(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-58-9

CMF C16 H20 N4 O2



CM 2

CRN 64-18-6

CMF C H2 O2



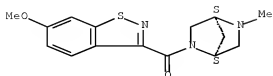
RN 858660-61-4 HCAPLUS

CN Formic acid, compd. with (6-methoxy-1,2-benzisothiazol-3-yl)((1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl)methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-60-3  
 CMF C15 H17 N3 O2 S

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

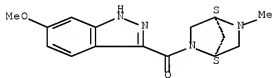


RN 858660-65-8 HCAPLUS  
 CN Formic acid, compd. with (6-methoxy-1H-indazol-3-yl) [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-64-7  
 CMF C15 H18 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2



RN 858660-67-0 HCAPLUS



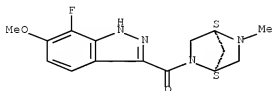
CN Formic acid, compd. with (7-fluoro-6-methoxy-1H-indazol-3-yl)[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-66-9

CMF C15 H17 F N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-70-5 HCAPLUS

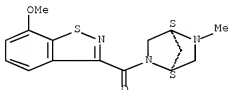
CN Formic acid, compd. with (7-methoxy-1,2-benzisothiazol-3-yl)[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-69-2

CMF C15 H17 N3 O2 S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-72-7 HCAPLUS

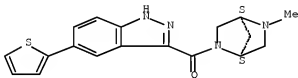
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-71-6

CMF C18 H18 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-74-9 HCAPLUS

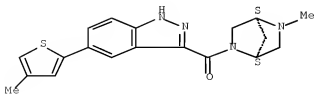
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(4-methyl-2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-73-8

CMF C19 H20 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-76-1 HCAPLUS

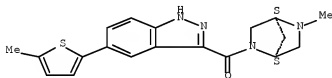
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(5-methyl-2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-75-0

CMF C19 H20 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-78-3 HCAPLUS

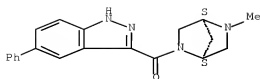
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-phenyl-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-77-2

CMF C20 H20 N4 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-80-7 HCAPLUS

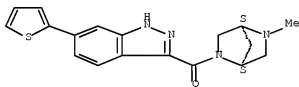
CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-79-4

CMF C18 H18 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



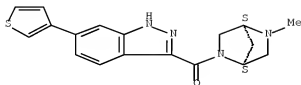
RN 858660-82-9 HCAPLUS

CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(3-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-81-8  
 CMF C18 H18 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

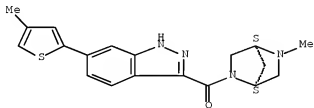


RN 858660-84-1 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(4-methyl-2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-83-0  
 CMF C19 H20 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

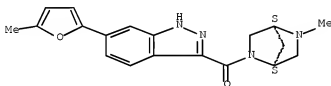


RN 858660-86-3 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(5-methyl-2-furanyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-85-2  
 CMF C19 H20 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

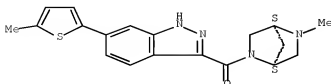


RN 858660-88-5 HCAPLUS  
 CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][6-(5-methyl-2-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-87-4  
 CMF C19 H20 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-90-9 HCAPLUS

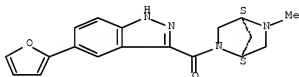
CN Formic acid, compd. with [5-(2-furanyl)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-89-6

CMF C18 H18 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-92-1 HCAPLUS

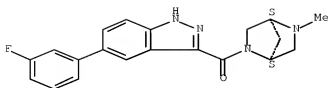
CN Formic acid, compd. with [5-(3-fluorophenyl)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-91-0

CMF C20 H19 F N4 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-95-4 HCAPLUS

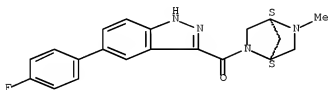
CN Formic acid, compd. with [5-(4-fluorophenyl)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-94-3

CMF C20 H19 F N4 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858660-98-7 HCAPLUS

CN Formic acid, compd. with [5-(4-methoxyphenyl)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)



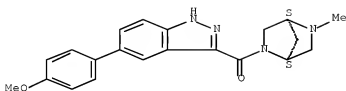
NAME)

CM 1

CRN 858660-97-6

CMF C21 H22 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-00-4 HCAPLUS

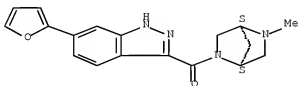
CN Formic acid, compd. with [6-(2-furanyl)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858660-99-8

CMF C18 H18 N4 O2

Absolute stereochemistry.



CM 2

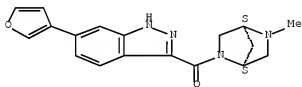
CRN 64-18-6

CMF C H2 O2



RN 858661-02-6 HCAPLUS  
 CN Formic acid, compd. with [6-(3-furanyl)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)  
 CM 1  
 CRN 858661-01-5  
 CMF C18 H18 N4 O2

Absolute stereochemistry.

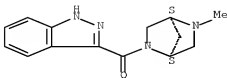


CM 2  
 CRN 64-18-6  
 CMF C H2 O2



RN 858661-04-8 HCAPLUS  
 CN Formic acid, compd. with 1H-indazol-3-yl [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)  
 CM 1  
 CRN 858661-03-7  
 CMF C14 H16 N4 O

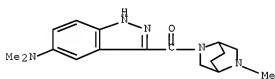
Absolute stereochemistry.



CM 2  
 CRN 64-18-6  
 CMF C H2 O2



RN 858661-09-3 HCAPLUS  
 CN Formic acid, compd. with [5-(dimethylamino)-1H-indazol-3-yl](5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)methanone (1:1) (CA INDEX NAME)  
 CM 1  
 CRN 858661-08-2  
 CMF C17 H23 N5 O

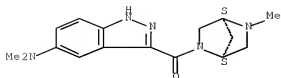


CM 2  
 CRN 64-18-6  
 CMF C H2 O2



RN 858661-11-7 HCAPLUS  
 CN Formic acid, compd. with [5-(dimethylamino)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl)methanone (1:1) (CA INDEX NAME)  
 CM 1  
 CRN 858661-10-6  
 CMF C16 H21 N5 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-13-9 HCAPLUS

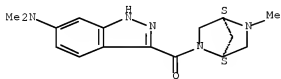
CN Formic acid, compd. with [6-(dimethylamino)-1H-indazol-3-yl] [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-12-8

CMF C16 H21 N5 O

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



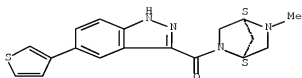
RN 858661-16-2 HCAPLUS

CN Formic acid, compd. with [(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl][5-(3-thienyl)-1H-indazol-3-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-15-1  
 CMF C18 H18 N4 O S

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

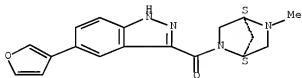


RN 858661-18-4 HCAPLUS  
 CN Formic acid, compd. with [5-(3-furanyl)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-17-3  
 CMF C18 H18 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

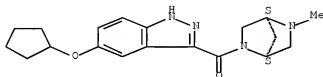


RN 858661-21-9 HCAPLUS  
 CN Formic acid, compd. with [5-(cyclopentyloxy)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-20-8  
 CMF C19 H24 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6  
 CMF C H2 O2

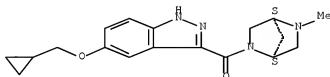


RN 858661-23-1 HCAPLUS  
 CN Formic acid, compd. with [5-(cyclopropylmethoxy)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-22-0  
 CMF C18 H22 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2

 $\text{O}=\text{CH}-\text{OH}$ 

RN 858661-25-3 HCAPLUS

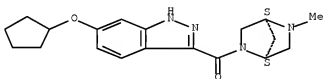
CN Formic acid, compd. with [6-(cyclopentyloxy)-1H-indazol-3-yl][(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]methanone (1:1) (CA INDEX NAME)

CM 1

CRN 858661-24-2

CMF C19 H24 N4 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2

 $\text{O}=\text{CH}-\text{OH}$ 

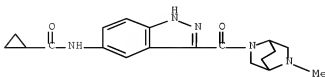
RN 858661-29-7 HCAPLUS

CN Formic acid, compd. with N-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]cyclopropanecarboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 858661-28-6

CMF C19 H23 N5 O2



CM 2

CRN 64-18-6

CMF C H2 O2



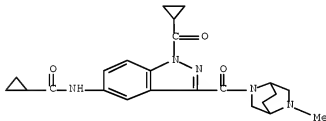
RN 858661-31-1 HCAPLUS

CN Formic acid, compd. with N-[1-(cyclopropylcarbonyl)-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]cyclopropanecarboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 858661-30-0

CMF C23 H27 N5 O3



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-33-3 HCAPLUS

CN Formic acid, compd. with N-[3-[[[1S,4S]-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]carbonyl]-1H-indazol-5-yl]cyclopropanecarboxamide (1:1) (CA INDEX NAME)

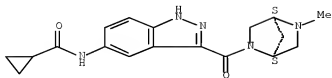
CM 1

CRN 858661-32-2

CMF C18 H21 N5 O2



Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-35-5 HCAPLUS

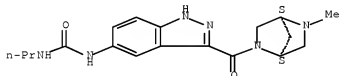
CN Formic acid, compd. with N-[3-[[1S,4S]-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]carbonyl]-1H-indazol-5-yl]-N'-propylurea (1:1) (CA INDEX NAME)

CM 1

CRN 858661-34-4

CMF C18 H24 N6 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-37-7 HCAPLUS

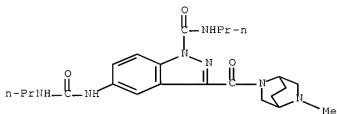
CN Formic acid, compd. with 3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-N-propyl-5-[[propylamino]carbonyl]amino]-1H-indazole-1-

carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 858661-36-6

CMF C23 H33 N7 O3



CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-39-9 HCAPLUS

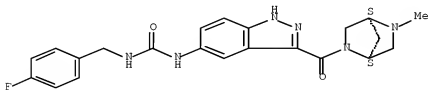
CN Formic acid, compd. with N-[(4-fluorophenyl)methyl]-N'-[3-[[[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]carbonyl]-1H-indazol-5-yl]urea (1:1) (CA INDEX NAME)

CM 1

CRN 858661-38-8

CMF C22 H23 F N6 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

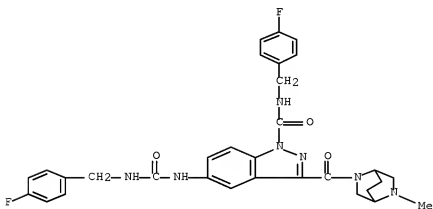
CMF C H2 O2



RN 858661-41-3 HCAPLUS  
 CN Formic acid, compd. with N-[(4-fluorophenyl)methyl]-5-[[[(4-fluorophenyl)methyl]amino]carbonyl]amino]-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide (1:1) (CA INDEX NAME)

CM 1

CRN 858661-40-2  
 CMF C31 H31 F2 N7 O3



CM 2

CRN 64-18-6  
 CMF C H2 O2

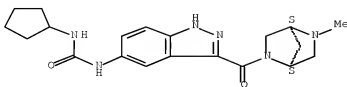


RN 858661-43-5 HCAPLUS  
 CN Formic acid, compd. with N-cyclopentyl-N'-[3-[[[(1S,4S)-5-methyl-2,5-diazabicyclo[2.2.1]hept-2-yl]carbonyl]-1H-indazol-5-yl]urea (1:1) (CA INDEX NAME)

CM 1

CRN 858661-42-4  
 CMF C20 H26 N6 O2

Absolute stereochemistry.



CM 2

CRN 64-18-6

CMF C H2 O2



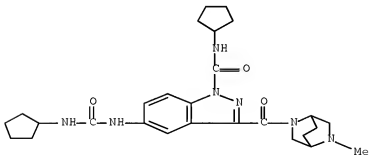
RN 858661-45-7 HCAPLUS

CN Formic acid, compd. with N-cyclopentyl-5-  
 [[[(cyclopentylamino)carbonyl]amino]-3-[(5-methyl-2,5-  
 diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide (1:1)  
 (CA INDEX NAME)

CM 1

CRN 858661-44-6

CMF C27 H37 N7 O3



CM 2

CRN 64-18-6

CMF C H2 O2



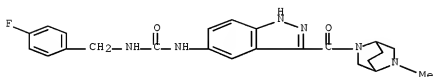
RN 858661-47-9 HCAPLUS

CN Formic acid, compd. with N-[(4-fluorophenyl)methyl]-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea (1:1)  
(CA INDEX NAME)

CM 1

CRN 858661-46-8

CMF C23 H25 F N6 O2



CM 2

CRN 64-18-6

CMF C H2 O2



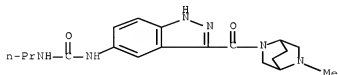
RN 858661-49-1 HCAPLUS

CN Formic acid, compd. with N-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]-N'-propylurea (1:1) (CA INDEX NAME)

CM 1

CRN 858661-48-0

CMF C19 H26 N6 O2



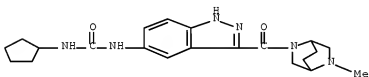
CM 2

CRN 64-18-6

CMF C H2 O2



RN 858661-51-5 HCAPLUS  
 CN Formic acid, compd. with N-cyclopentyl-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea (1:1) (CA INDEX NAME)  
 CM 1  
 CRN 858661-50-4  
 CMF C21 H28 N6 O2



CM 2  
 CRN 64-18-6  
 CMF C H2 O2



IT 544-92-3, Copper (I) cyanide  
 (indoles, 1H-indazoles, 1,2-benzisoxazoles, and  
 1,2-benzisothiazoles preparation and use as  $\alpha 7$  nicotinic receptor  
 ligands for treating various nervous system diseases)  
 RN 544-92-3 HCAPLUS  
 CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



IC ICM C07D487-18  
 ICS A61K031-4995; A61P025-00  
 CC 28-8 (Heterocyclic Compounds (More Than One Hetero Atom))  
 Section cross-reference(s): 1  
 IT 858659-93-5P 858659-94-6P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-6-(1,3-thiazol-2-yl)-1H-indazole hydrochloride  
 858659-95-7P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-

indazole hydrochloride 858659-96-8P,  
3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole  
858659-97-9P, 3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858659-98-0P,  
3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-6-(1,3-thiazol-2-yl)-1H-indazole 858659-99-1P,  
6-[(1,3-Thiazol-2-yl)]-3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858660-00-1P  
858660-01-2P 858660-02-3P 858660-03-4P  
858660-04-5P 858660-05-6P 858660-06-7P  
858660-07-8P 858660-12-5P 858660-13-6P  
858660-17-0P 858660-18-1P 858660-19-2P  
858660-20-3P 858660-21-6P 858660-22-7P  
858660-23-8P 858660-24-9P 858660-25-0P  
858660-26-1P 858660-27-2P 858660-28-3P  
858660-29-4P 858660-30-7P 858660-31-8P  
858660-32-9P 858660-33-0P 858660-34-1P  
858660-35-2P 858660-36-3P 858660-37-4P  
858660-38-5P 858660-39-6P 858660-40-9P  
858660-41-0P 858660-43-2P,  
5-Methoxy-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858660-44-3P,  
3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-5-methoxy-1H-indazole hydrochloride 858660-45-4P 858660-46-5P 858660-47-6P  
858660-48-7P 858660-49-8P 858660-50-1P  
858660-51-2P 858660-52-3P 858660-53-4P  
858660-54-5P 858660-55-6P 858660-56-7P  
858660-57-8P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-6-methoxy-1H-indazole hydrochloride 858660-58-9P,  
6-Methoxy-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole 858660-59-0P,  
6-Methoxy-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole hydroformate 858660-60-3P 858660-61-4P  
858660-63-6P 858660-64-7P 858660-65-8P 858660-66-9P  
858660-67-0P 858660-69-2P 858660-70-3P  
858660-71-6P 858660-72-7P 858660-73-8P  
858660-74-9P 858660-75-0P 858660-76-1P  
858660-77-2P 858660-78-3P 858660-79-4P  
858660-80-7P 858660-81-8P 858660-82-9P  
858660-83-0P 858660-84-1P 858660-85-2P  
858660-86-3P 858660-87-4P 858660-88-5P  
858660-89-6P 858660-90-9P 858660-91-0P  
858660-92-1P 858660-94-3P 858660-95-4P  
858660-97-6P 858660-98-7P 858660-99-8P  
858661-00-4P 858661-01-5P 858661-02-6P  
858661-03-7P 858661-04-8P 858661-05-9P 858661-06-0P,  
N-(Cyclopropylmethyl)-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-amine 858661-07-1P 858661-08-2P,  
3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-5-(N,N-dimethylamine)-1H-indazole 858661-09-3P,  
3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-5-(N,N-dimethylamine)-1H-indazole hydroformate 858661-10-6P  
858661-11-7P 858661-12-8P 858661-13-9P  
858661-14-0P 858661-15-1P 858661-16-2P 858661-17-3P  
858661-18-4P 858661-19-5P 858661-20-8P  
858661-21-9P 858661-22-0P 858661-23-1P  
858661-24-2P 858661-25-3P 858661-26-4P,  
5-Amino-3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole 858661-27-5P 858661-28-6P,  
N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-

yl)cyclopropanecarboxamide 858661-29-7P,  
 N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl)cyclopropanecarboxamide hydroformate 858661-31-1P,  
 N-[1-(Cyclopropylcarbonyl)-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl)cyclopropanecarboxamide hydroformate  
 858661-32-2P 858661-33-3P 858661-34-4P  
 858661-35-5P 858661-37-7P,  
 3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-N-propyl-5-[[ (propylamino)carbonyl]amino]-1H-indazole-1-carboxamide hydroformate  
 858661-38-8P 858661-39-9P 858661-41-3P,  
 N-(4-Fluorobenzyl)-5-[[ (4-fluorobenzyl)amino]carbonyl]amino]-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide hydroformate 858661-42-4P 858661-43-5P  
 858661-45-7P,  
 N-Cyclopentyl-5-[(cyclopentylamino)carbonyl]amino]-3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole-1-carboxamide hydroformate 858661-46-8P, N-(4-Fluorobenzyl)-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea  
 858661-47-9P, N-(4-Fluorobenzyl)-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea hydroformate 858661-48-0P, N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]-N'-(propyl)urea  
 858661-49-1P, N'-Propyl-N-[3-[(5-Methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]-urea hydroformate 858661-50-4P, N-Cyclopentyl-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea  
 858661-51-5P, N-Cyclopentyl-N'-[3-[(5-methyl-2,5-diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazol-5-yl]urea hydroformate 858661-52-6P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-6-(1,3-thiazol-2-yl)-1H-indazole 858661-53-7P  
 858661-54-8P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-1H-indazole 858661-65-1P 858661-67-3P,  
 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-5-methoxy-1H-indazole 858661-68-4P, 3-[(2,5-Diazabicyclo[2.2.2]oct-2-yl)carbonyl]-6-methoxy-1H-indazole  
 (drug candidate; indoles, 1H-indazoles, 1,2-benzisoxazoles, and 1,2-benzisothiazoles preparation and use as  $\alpha 7$  nicotinic receptor ligands for treating various nervous system diseases)  
 IT 87-48-9 98-80-6 100-02-7, 4-Nitrophenol, reactions 100-52-7, Benzaldehyde, reactions 105-53-3, Diethyl malonate 106-53-6  
 110-78-1 137-43-9 343-69-1 383-62-0, Ethyl chlorodifluoroacetate 544-92-3, Copper (I) cyanide 594-19-4, tert-Butyllithium 696-63-9 768-35-4 1081-04-5 1489-69-6,  
 Cyclopropanecarboxaldehyde 1765-93-1 3460-18-2, 1,4-Dibromo-2-nitrobenzene 4023-34-1, Cyclopropanecarbonyl chloride 4498-67-3, 1H-Indazole-3-carboxylic acid 4498-68-4, Ethyl indazole-3-carboxylate 4747-71-1 5260-20-8 5470-65-5, 3-Bromo-4-nitrophenol 5720-07-0 6165-68-0 6165-69-1 6320-01-0 6326-79-0 7051-34-5 7217-59-6 13331-23-2 15570-12-4, 3-Methoxybenzenethiol 23719-80-4, Cyclopropylmagnesium bromide 29943-42-8, Tetrahydropyran-4-one 39755-95-8 40991-34-2, 1,2-Benzisothiazole-3-carboxylic acid 52321-18-3 55552-70-0 62306-79-0 70315-70-7, 3-Iodo-6-nitroindazole 78155-76-7 86704-82-7 127420-27-3 132740-43-3 140681-55-6, 1-Chloromethyl-4-fluoro-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate) 162607-15-0 162607-20-7 169037-23-4 197010-37-0, 2-Amino-5-amino-hexanedioic acid diethyl ester dihydrochloride 518990-36-8 533885-93-7 533885-94-8 858671-74-6 858671-77-9, Ethyl 6-methoxy-1H-indazole-3-carboxylate 869782-71-8 869782-74-1 869782-97-8 885272-94-6 885277-92-9



1023993-30-7 1023999-89-4

(indoles, 1H-indazoles, 1,2-benzisoxazoles, and  
1,2-benzisothiazoles preparation and use as  $\alpha 7$  nicotinic receptor  
ligands for treating various nervous system diseases)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS  
RECORD (5 CITINGS)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L19 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:205966 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 142:197901

TITLE: Product class 13: quinazolines

AUTHOR(S): Kikelj, D.

CORPORATE SOURCE: Germany

SOURCE: Science of Synthesis (2004), 16, 573-749

CODEN: SSCYJ9

PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

ED Entered STN: 15 Mar 2004

AB A review. Preparation of quinazolines by ring closure and ring transformation  
reactions as well as aromatization and substituent modification is given.

IT 540-69-2

(preparation of quinazolines)

RN 540-69-2 HCAPLUS

CN Formic acid, ammonium salt (1:1) (CA INDEX NAME)



IT 544-92-3, Copper cyanide (Cu(CN))

(preparation of quinazolines)

RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



CC 28-0 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 67-72-1 77-48-5 84-58-2 93-59-4, Benzenecarboperoxoic acid

94-36-0, uses 98-09-9, Benzenesulfonyl chloride 102-69-2

109-95-5 110-86-1, Pyridine, uses 118-75-2, uses 128-08-5

143-33-9, Sodium cyanide (Na(CN)) 144-55-8, Carbonic acid monosodium  
salt, uses 333-20-0 429-41-4 459-73-4 501-65-5

540-69-2 546-67-8 590-28-3 598-41-4 603-35-0, uses

657-84-1 762-21-0 865-33-8 865-47-4 872-50-4, uses 999-97-3

1020-84-4 1066-33-7, Ammonium bicarbonate 1112-67-0 1122-58-3

1309-48-4, Magnesium oxide (MgO), uses 1313-13-9, Manganese oxide

- (MnO<sub>2</sub>), uses 1313-82-2, Sodium sulfide (Na<sub>2</sub>S), uses 1333-82-0, Chromium oxide (CrO<sub>3</sub>) 1455-13-6, Methanol-d 1499-10-1 1576-35-8 1762-95-4 2052-49-5, Tetrabutylammonium hydroxide 2311-91-3 3481-12-7, Sodium naphthalenide, uses 4039-32-1 5470-11-1 6674-22-2 7181-87-5 7439-89-6, Iron, uses 7440-23-5, Sodium, uses 7440-66-6, Zinc, uses 7446-09-5, Sulfur dioxide, uses 7450-69-3 7550-45-0, Titanium chloride (TiCl<sub>4</sub>) (T-4)-, uses 7601-90-3, Perchloric acid, uses 7631-86-9, Silica, uses 7631-90-5 7646-78-8, uses 7646-85-7, Zinc chloride (ZnCl<sub>2</sub>), uses 7647-14-5, Sodium chloride (NaCl), uses 7681-82-5, Sodium iodide (NaI), uses 7697-37-2, Nitric acid, uses 7705-07-9, Titanium chloride (TiCl<sub>3</sub>), uses 7705-08-0, Iron chloride (FeCl<sub>3</sub>), uses 7719-09-7, Thionyl chloride 7719-12-2, Phosphorous trichloride 7723-14-0, Phosphorus, uses 7727-54-0 7757-79-1, Nitric acid potassium salt, uses 7758-02-3, Potassium bromide (KBr), uses 7761-88-8, Nitric acid silver(1+) salt, uses 7772-99-8, Tin chloride (SnCl<sub>2</sub>), uses 7782-44-7, Oxygen, uses 7782-49-2, Selenium, uses 7782-50-5, Chlorine, uses 7782-92-5, Sodium hydride (Na(NH<sub>2</sub>)) 7783-93-9 7789-20-0, Water-d2 7789-60-8, Phosphorous tribromide 7790-94-5, Chlorosulfuric acid 7803-49-8, Hydroxylamine, uses 10026-13-8 10028-15-6, Ozone, uses 10034-85-2, Hydriodic acid 10035-10-6, Hydrobromic acid, uses 10294-33-4 10544-50-0, uses 12027-06-4, Ammonium iodide 13746-66-2 13826-86-3 13840-56-7, Sodium borate 14014-06-3, Sodium hydroxide (NaOD)) 14217-21-1, Trisodium hexacyanoferrate 15525-45-8 15857-57-5 16721-80-5, Sodium sulfide (Na(SH)) 17242-52-3, Potassium amide (K(NH<sub>2</sub>)) 20667-12-3, Silver oxide (Ag<sub>2</sub>O) 21908-53-2, Mercury oxide (HgO) 26386-88-9 26628-22-8, Sodium azide (Na(N<sub>3</sub>)) 29154-12-9 337913-25-4 573672-35-2, Sodium peroxide (Na(O<sub>2</sub>)) (preparation of quinazolines)
- II 50-00-0, Formaldehyde, reactions 55-21-0, Benzamide 59-48-3 60-34-4 60-35-5, Acetamide, reactions 62-53-3, Benzenamine, reactions 62-55-5, Ethanethioamide 62-56-6, Thiourea, reactions 64-17-5, Ethanol, reactions 64-18-6, Formic acid, reactions 64-19-7, Acetic acid, reactions 64-67-5 65-45-2 66-99-9, 2-Naphthalenecarboxaldehyde 67-56-1, Methanol, reactions 67-64-1, 2-Propanone, reactions 67-66-3, reactions 70-11-1 71-23-8, 1-Propanol, reactions 71-36-3, 1-Butanol, reactions 74-88-4, reactions 74-89-5, Methanamine, reactions 74-90-8, Hydrocyanic acid, reactions 74-96-4 75-03-6 75-05-8, Acetonitrile, reactions 75-07-0, Acetaldehyde, reactions 75-15-0, Carbon disulfide, reactions 75-24-1 75-36-5, Acetyl chloride 75-44-5, Carbonic dichloride 75-52-5, reactions 75-77-4, reactions 75-87-6 75-98-9 77-78-1 78-39-7 78-83-1, reactions 78-93-3, 2-Butanone, reactions 79-04-9 79-05-0, Propanamide 79-22-1 80-48-8 80-62-6 84-26-4 87-25-2 88-68-6 89-77-0 91-56-5, 1H-Indole-2,3-dione 93-97-0 95-92-1 96-32-2 97-39-2 98-74-8 98-93-9, reactions 98-86-2, reactions 98-88-4, Benzoyl chloride 98-92-0, 3-Pyridinecarboxamide 100-10-7 100-36-7 100-39-0 100-44-7, reactions 100-46-9, Benzenemethanamine, reactions 100-47-0, Benzonitrile, reactions 100-48-1, 4-Pyridinecarbonitrile 100-52-7, Benzaldehyde, reactions 100-54-9, 3-Pyridinecarbonitrile 100-58-3 100-61-8, reactions 101-99-5 102-06-7 102-85-2 103-71-9, reactions 103-72-0 103-76-4, 1-Piperazineethanol 103-81-1, Benzenacetamide 103-84-4 104-85-8 104-88-1, reactions 104-94-9 105-36-2 105-39-5 105-53-3 105-56-6 106-49-0, reactions 106-95-6, reactions 107-10-8, Propylamine, reactions 107-12-0, Propanenitrile 107-14-2 107-19-7, 2-Propyn-1-ol 107-59-5 107-92-6, Butanoic acid, reactions 108-24-7 109-51-3, Pentanimidamide 109-65-9 109-72-8, reactions 109-73-9,

1-Butanamine, reactions 109-75-1, 3-Butenenitrile 110-91-8,  
 Morpholine, reactions 113-00-8, Guanidine 115-08-2,  
 Methanethioamide 115-80-0 116-15-4 118-48-9,  
 2H-3,1-Benzoxazine-2,4(1H)-dione 118-74-1 118-92-3 120-14-9  
 120-92-3, Cyclopentanone 120-94-5 121-44-8, reactions 121-45-9  
 122-51-0 122-52-1 123-11-5, reactions 123-75-1, Pyrrolidine,  
 reactions 124-38-9, Carbon dioxide, reactions 124-40-3, reactions  
 124-41-4 124-63-0, Methanesulfonyl chloride 126-98-7 134-20-3  
 135-02-4 139-02-6 140-29-4, Benzeneacetoneitrile 140-89-6  
 141-43-5, reactions 141-52-6 141-97-9 143-37-3, Ethanimidamide  
 147-47-7 271-44-3, 1H-Indazole 290-87-9, 1,3,5-Triazine 334-88-3  
 353-42-4 357-83-5 369-57-3 394-47-8 407-25-0 420-04-2,  
 Cyanamide 445-27-2 459-44-9 461-58-5 463-52-5, Methanimidamide  
 463-58-1, Carbon oxide sulfide (COS) 479-33-4 496-15-1 504-74-5,  
 Imidazolidine 506-68-3, Cyanogen bromide ((CN)Br) 506-77-4,  
 Cyanogen chloride ((CN)Cl) 507-09-5, Ethanethioic acid, reactions  
 513-35-9 525-76-8 529-23-7 533-68-6 535-11-5 536-90-3  
 541-41-3 542-69-8 544-92-3, Copper cyanide (Cu(CN))  
 551-93-9 555-16-8, reactions 556-56-9 556-64-9 563-47-3  
 563-83-7 574-17-4 587-65-5 591-51-5 598-21-0 604-75-1  
 606-18-8 607-69-2 609-15-4 609-65-4 609-85-8 610-68-4  
 612-24-8 614-76-6 616-38-6 617-90-3, 2-Furancarbonitrile  
 618-39-3, Benzenecarboximidamide 619-72-7 621-06-7 621-30-7  
 622-16-2 623-49-4 626-36-8 626-67-5 627-26-9 628-17-1  
 628-73-9, Hexanenitrile 630-08-0, Carbon monoxide, reactions  
 636-04-4 645-54-5, Benzeneethanethioamide 670-54-2,  
 Ethenetetra-carbonitrile, reactions 693-02-7, 1-Hexyne 693-03-8  
 705-62-4 719-59-5 747-48-8 762-42-5 766-05-2,  
 Cyclohexanecarbonitrile 771-99-3 784-45-2 811-51-8 828-51-3  
 873-74-5 888-71-1 917-64-6 922-64-5 922-67-8 925-90-6  
 926-64-7 933-52-8 951-48-4 954-91-6 996-82-7 1000-84-6  
 1121-60-4, 2-Pyridinecarboxaldehyde 1122-85-6 1125-43-5  
 1187-46-8 1189-71-5, Sulfuryl chloride isocyanate 1192-95-6  
 1199-00-4 1206-17-3 1206-55-9 1424-52-8 1441-87-8 1467-79-4  
 1527-91-9 1530-88-7, 1-Pyrrolidinecarbonitrile 1530-89-8,  
 4-Morpholinecarbonitrile 1589-82-8 1614-92-2 1640-52-4  
 1640-59-1 1663-61-2 1770-88-3 1806-65-1  
 (preparation of quinazolines)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS  
 RECORD (4 CITINGS)  
 REFERENCE COUNT: 1014 THERE ARE 1014 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

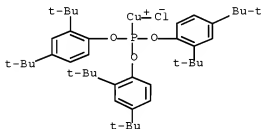
L19 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:672784 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:322258  
 TITLE: Cone calorimetric study of copper additive smoke  
 suppression in poly(vinyl chloride)  
 AUTHOR(S): Pike, Robert D.; Starnes, William H., Jr.; Doyal,  
 Alexander S.; Murray, Philip J.; Zhang, Jing  
 CORPORATE SOURCE: Department of Chemistry, College of William and  
 Mary, Williamsburg, VA, 23187-8795, USA  
 SOURCE: Proceedings of the Conference on Recent Advances  
 in Flame Retardancy of Polymeric Materials (2002),  
 13, 353-359  
 CODEN: PCRABT  
 PUBLISHER: Business Communications Co., Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 28 Aug 2003  
 AB Various copper(I)- and copper(II)-containing compds. have been evaluated as potential smoke-suppressant additives in rigid and plasticized poly(vinyl chloride) (PVC). Copper-containing PVC samples have been burned in a cone calorimeter and the data evaluated for parameters including time to ignition, smoke released, heat release rate, mass loss rate, and effective heat of combustion. The results show a marked decrease in both flame and smoke from the polymer when copper-rich additives are present. In addition, synergism studies of copper/molybdenum additive mixts. have been carried out with rigid PVC.  
 IT 624-88-4, Copper formate 124634-90-8  
 (Cone calorimetric study of copper-containing additive smoke suppression in rigid and plasticized PVC)  
 RN 624-88-4 HCAPLUS  
 CN Formic acid, copper(1+) salt (8CI, 9CI) (CA INDEX NAME)

$\text{C}\equiv\text{CH}-\text{OH}$

● Cu(I)

RN 124634-90-8 HCAPLUS  
 CN Copper, chloro[tris(2,4-bis(1,1-dimethylethyl)phenyl)phosphite-κP]- (9CI) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)  
 IT 624-88-4, Copper formate 814-91-5, Copper oxalate (CuC2O4)  
 1317-39-1, Copper oxide (Cu2O), uses 7758-89-6, Copper chloride  
 11129-27-4, Copper bromide 12207-64-6, Ammonium molybdate  
 ((NH4)4Mo8O26) 124634-90-8 414910-84-2 414910-86-4  
 414910-87-5  
 (Cone calorimetric study of copper-containing additive smoke suppression in rigid and plasticized PVC)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L19 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:665567 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 139:365660  
 TITLE: Cone calorimetric study of copper-promoted smoke

suppression and fire retardance of poly(vinyl chloride)

AUTHOR(S): Starnes, William H.; Pike, Robert D.; Cole, Jenine R.; Doyal, Alexander S.; Kimlin, Edward J.; Lee, Jeffrey T.; Murray, Philip J.; Quinlan, Ronald A.; Zhang, Jing

CORPORATE SOURCE: Departments of Chemistry and Applied Science, College of William and Mary, Williamsburg, VA, 23187-8795, USA

SOURCE: Polymer Degradation and Stability (2003), 82(1), 15-24  
CODEN: PDSTDW; ISSN: 0141-3910

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 26 Aug 2003

AB Copper-based smoke suppression additives for poly(vinyl chloride) (PVC) were tested for crosslinking capability in pyrolysis studies and for smoke suppression and fire retardance by the use of cone calorimetry. Crosslinking of PVC at 190° was promoted by most of the additives without an obvious dependence on additive copper content or copper oxidation state. The copper additives (at 10 parts by weight per hundred parts of resin) proved to inhibit both smoke and heat evolution in burning PVC samples (both rigid and plasticized) in cone calorimetric studies. Mixed-metal oxides of copper were especially effective in this regard. Synergism in smoke suppression was noted for combinations of Cu<sub>3</sub>(MoO<sub>4</sub>)<sub>2</sub>(OH)<sub>2</sub> and CuSnO<sub>3</sub> in plasticized PVC. A 2:1 (weight/weight) mixture of Cu<sub>3</sub>(MoO<sub>4</sub>)<sub>2</sub>(OH)<sub>2</sub> and CuSnO<sub>3</sub> yielded a reduction in specific extinction area (a measure of smoke obscuration) of 64% and a reduction in total smoke release of 79% vs. the control sample.

IT 544-19-4, Copper(II) formate  
(preparation and smoke suppression and fire retardancy of copper compds. used for PVC)

RN 544-19-4 HCAPLUS

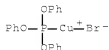
CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



IT 14318-89-9P 24484-07-9P 124634-90-8P  
414910-82-0P  
(preparation and smoke suppression and fire retardancy of copper compds. used for PVC)

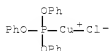
RN 14318-89-9 HCAPLUS

CN Copper, bromo(triphenyl phosphite-κP)-(9CI) (CA INDEX NAME)



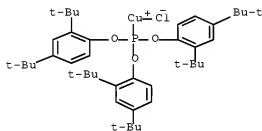
RN 24484-07-9 HCAPLUS

CN Copper, chloro(triphenyl phosphite-κP)- (9CI) (CA INDEX NAME)



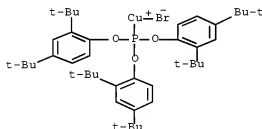
RN 124634-90-8 HCAPLUS

CN Copper, chloro[tris[2,4-bis(1,1-dimethylethyl)phenyl]phosphite-κP]- (9CI) (CA INDEX NAME)



RN 414910-82-0 HCAPLUS

CN Copper, bromo[tris[2,4-bis(1,1-dimethylethyl)phenyl]phosphite-κP]- (9CI) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 78

IT 544-19-4, Copper(II) formate 814-91-5, Copper(II) oxalate

1192-40-1 1309-64-4, Antimony(3+) oxide, uses 1317-39-1, Copper

oxide (Cu2O), uses 4903-02-0 12069-69-1 12207-64-6, Ammonium

molybdate (NH4)4Mo8O26 12536-65-1, Boron zinc oxide (B4Zn3O9)

14039-26-0 21467-97-0 102840-69-7 622411-11-4 622411-13-6

(preparation and smoke suppression and fire retardancy of copper compds.  
used for PVC)

IT 12018-91-6P, Copper tin hydroxide CuSn(OH)6 12019-07-7P, Copper tin  
oxide CuSnO3 14318-89-9P 15122-99-3P  
24484-67-9P 27739-50-0P, Copper molybdenum hydroxide oxide  
(Cu3Mo2(OH)2O8) 34335-09-6P 34461-68-2P 56698-24-9P  
75479-23-1P 124634-90-8P 414910-82-0P  
414910-83-1P 414910-84-2P 414910-85-3P 414910-86-4P  
414910-87-5P 414910-88-6P 622411-16-9P  
(preparation and smoke suppression and fire retardancy of copper compds.  
used for PVC)

OS.CITING REF COUNT: 26 THERE ARE 26 CAPLUS RECORDS THAT CITE THIS  
RECORD (26 CITINGS)  
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L19 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:56019 HCAPLUS Full-text

DOCUMENT NUMBER: 138:106430

TITLE: Procedure and catalysts for the production of  
monopropargyl amines from diaminomethanes and  
acetylenes

INVENTOR(S): Henkelmann, Jochem; Thil, Lucien; Arndt, Jan-Dirk;  
Knochel, Paul; Koradin, Christopher

PATENT ASSIGNEE(S): BASF AG, Germany

SOURCE: Ger. Offen., 8 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10134160	A1	20030123	DE 2001-10134160	20010713
PRIORITY APPLN. INFO.:			DE 2001-10134160	20010713

OTHER SOURCE(S): CASREACT 138:106430; MARPAT 138:106430

ED Entered STN: 24 Jan 2003

AB Monopropargyl amines R1C.tplbond.CCH(R4)N(R3)R2 [R1 = H, linear or  
(un)branched cyclic or acyclic C1-10 alkyl or C2-10 alkenyl, halogen,  
(un)substituted Ph, etc.; R2, R3 = H, (un)branched (un)substituted cyclic  
acyclic alkyl or alkenyl, etc.; R4 = H, or (un)branched cyclic or acyclic  
residue; e.g., 3-(diethylamino)-1-propyne] are prepared in high yield and  
selectivity by the reaction of an (un)substituted acetylene R1C.tplbond.CH  
(e.g., acetylene) with a diaminomethane R3(R2)NC(R4)HN(R3)R2 [e.g.,  
bis(diethylamino)methane] in the presence of a copper salt catalyst (e.g.,  
cupric bromide) which is soluble in the reaction medium (e.g., n-decane), and  
the reaction is conducted in the absence of water or aldehydes.

IT 544-19-4, Cupric formate 544-92-3, Cuprous  
cyanide 624-88-4, Cuprous formate 4367-08-2,  
Cupric cyanide 54865-38-2

(catalyst for the production of monopropargyl amines from  
diaminomethanes and acetylenes)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



RN 544-92-3 HCAPLUS  
 CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



RN 624-88-4 HCAPLUS  
 CN Formic acid, copper(1+) salt (8CI, 9CI) (CA INDEX NAME)



RN 4367-08-2 HCAPLUS  
 CN Copper cyanide (Cu(CN)<sub>2</sub>) (9CI) (CA INDEX NAME)



RN 54865-38-2 HCAPLUS  
 CN Copper(1+), (trimethyl phosphite-κP)- (9CI) (CA INDEX NAME)



IC ICM C07B043-04  
 ICS C07C209-60  
 CC 23-4 (Aliphatic Compounds)  
 Section cross-reference(s): 21, 45, 67  
 IT 75-18-3, Dimethylsulfide 544-19-4, Cupric formate  
 544-92-3, Cuprous cyanide 624-88-4, Cuprous  
 formate 3251-23-8, Cupric nitrate 3251-29-4, Cuprous nitrate  
 4367-08-2, Cupric cyanide 7447-39-4, Cupric chloride, uses  
 7681-65-4, Cuprous iodide 7758-89-6, Cuprous chloride 7758-98-7,



Cupric sulfate, uses 7787-70-4, Cuprous bromide 7789-45-9, Cupric bromide 13767-71-0, Cupric iodide 13770-18-8, Cupric perchlorate 14708-11-3, Cuprous tetrafluoroborate 15061-57-1, Cuprous perchlorate 16712-25-7, Cupric trifluoroacetate 17599-81-4, Cuprous sulfate 25535-55-1, Cuprous trifluoroacetate 26490-65-3, Cuprous hexafluorophosphate 38465-60-0, Cupric tetrafluoroborate 54865-38-2 64443-05-6

(catalyst for the production of monopropargyl amines from diaminomethanes and acetylenes)

L19 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:600601 HCAPLUS Full-text

DOCUMENT NUMBER: 132:208647

TITLE: Low-valent metals as reductive crosslinking agents: a new strategy for smoke suppression of poly(vinyl chloride)

AUTHOR(S): Pike, R. D.; Starnes, W. H., Jr.; Jeng, J. P.; Bryant, W. S.; Kourtesis, P.; Adams, C. W.; Bunge, S. D.; Kang, Y. M.; Kim, A. S.; Kim, J. H.; Macko, J. A.; O'Brien, C. P.

CORPORATE SOURCE: Departments of Chemistry and Applied Science, College of William and Mary, Williamsburg, VA, 23187-8795, USA

SOURCE: Chemistry and Technology of Polymer Additives (1999), 195-217. Editor(s): Al-Malaika, Sahar; Golovoy, Amos; Wilkie, Charles A. Blackwell: Oxford, UK.

CODEN: 68DWA9

DOCUMENT TYPE: Conference

LANGUAGE: English

ED Entered STN: 23 Sep 1999

AB Several types of additives that contain transition metals can promote the crosslinking of poly(vinyl chloride) (PVC) by a mechanism that apparently involves reductive coupling of the polymer chains. In solid PVC, the crosslinking occurs at 200°C, and model-compound expts. show that it can be ascribed to the preferential reductive coupling of allylic chloride structures when the coupling agent is Cu(0). However, the concurrent coupling of other chloride moieties has not been entirely ruled out. The evidence for reductive coupling consists of rapid gel formation accompanied by substantial redns. (or minor changes) in the rates of total mass loss (as determined by TGA measurements), CC formation (as observed by FTIR spectroscopy), and HCl evolution (as determined by acid-base titrimetry). Additives that promote the coupling process are sources of a zero- or low-valent metal upon pyrolysis. These additives include a number of transition-metal carbonyls, divalent formates or oxalates of the late transition metals, simple Cu(I) halides, and various complexes of Cu(I) containing phosphites or other ligands. Since the reductive coupling agents tend to have low acidities, they are not expected to promote the cationic cracking of char. Thus they are potentially attractive as replacements for the PVC smoke suppressants that stimulate crosslinking by acting as Lewis acids.

IT 544-19-4, Copper diformate

(low-valence metals as reductive crosslinking agents and a new strategy for smoke suppression of poly(vinyl chloride))

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Cu(II)

IT 3047-59-4, Iron diformate 3349-06-2, Nickel  
diformate 107060-84-4 259730-06-8  
(low-valence metals as reductive crosslinking agents and a new  
strategy for smoke suppression of poly(vinyl chloride))  
RN 3047-59-4 HCAPLUS  
CN Formic acid, iron(2+) salt (8CI, 9CI) (CA INDEX NAME)



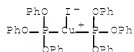
● 1/2 Fe(II)

RN 3349-06-2 HCAPLUS  
CN Formic acid, nickel(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Ni(II)

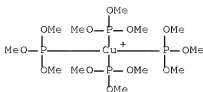
RN 107060-84-4 HCAPLUS  
CN Copper, iodobis(triphenyl phosphite-κP)- (9CI) (CA INDEX NAME)



RN 259730-06-8 HCAPLUS  
CN Copper(1+), tetrakis(trimethyl phosphite-κP)-, (T-4)-,  
tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45298-82-6  
CMF C12 H36 Cu O12 P4  
CCI CCS



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 23

IT 544-19-4, Copper diformate 10170-69-1, Dimanganese  
 decacarbonyl 10210-68-1, Dicobalt octacarbonyl 13939-06-5,  
 Molybdenum hexacarbonyl

(low-valence metals as reductive crosslinking agents and a new  
 strategy for smoke suppression of poly(vinyl chloride))

IT 516-03-0, Iron oxalate 547-67-1, Nickel oxalate 3047-59-4  
 , Iron diformate 3349-06-2, Nickel diformate 7447-39-4,  
 Copper dichloride, uses 7646-85-7, Zinc chloride, uses 7681-65-4,  
 Copper moniodide 7705-08-0, Iron trichloride, uses 7718-54-9,  
 Nickel dichloride, uses 7758-89-6, Copper chloride 7758-94-3, Iron  
 dichloride 7772-99-8, Tin dichloride, uses 7787-70-4, Copper  
 monobromide 7789-45-9, Copper dibromide 14040-11-0, Tungsten  
 hexacarbonyl 15321-51-4, Iron enneacarbonyl 50409-58-0  
 64443-05-6 107060-84-4 134761-87-8, Cobalt oxalate  
 137002-85-8 220769-89-1 220769-90-4 259730-05-7  
 259730-06-8 259730-07-9 259730-08-0 259730-09-1  
 259730-10-4 259730-11-5 259730-12-6

(low-valence metals as reductive crosslinking agents and a new  
 strategy for smoke suppression of poly(vinyl chloride))

REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L19 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:577773 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:195344

TITLE: Smoke suppression of PVC by reductive crosslinking

AUTHOR(S): Starnes, W. H., Jr.; Pike, R. D.; Adams, C. W.;  
 Bunge, S. D.; Kang, Y. M.; Kim, A. S.; Kim, J. H.

CORPORATE SOURCE: Dep. of Chemistry and Dep. of Applied Science,

College of William and Mary, Williamsburg, VA,  
23187-8795, USA

## SOURCE:

Additives '98: Strategies and Innovations for  
Value-Added Polymers, International Conference &  
Exhibit, 7th, Orlando, Fla., Feb. 16-18, 1998  
(1998), 3/1-3/8. Executive Conference Management:  
Plymouth, Mich.

CODEN: 68BRAI

## DOCUMENT TYPE:

Conference

## LANGUAGE:

English

ED Entered STN: 15 Sep 1999

AB Upon heating, several classes of additives containing transition metals have been shown to cause the reductive crosslinking of poly(vinyl chloride) (PVC). When these additives are used, Lewis-acid-promoted crosslinking does not intervene, and the actual crosslinking species are zero- or low-valent metals that usually are formed in situ. Unlike Lewis acids, the reductive crosslinking agents are not expected to promote the cracking of char into flammable fragments. Thus these agents are potential smoke suppressants and fire retardants for com. PVC products.

IT 544-19-4 3349-06-2 22829-46-5

107060-84-4 259730-06-8

(effect of addition of; smoke suppression of PVC by reductive crosslinking)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Cu(II)

RN 3349-06-2 HCAPLUS

CN Formic acid, nickel(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Ni(II)

RN 22829-46-5 HCAPLUS

CN Formic acid, iron(2+) salt, hydrate (8CI, 9CI) (CA INDEX NAME)

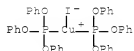


● 1/2 Fe(II)

● x H<sub>2</sub>O

RN 107060-84-4 HCAPLUS

CN Copper, iodobis(triphenyl phosphite-κP)- (9CI) (CA INDEX NAME)



RN 259730-06-8 HCAPLUS

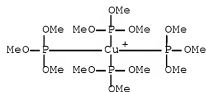
CN Copper(1+), tetrakis(trimethyl phosphite-κP)-, (T-4)-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45298-82-6

CMF C12 H36 Cu O12 P4

CCI CCS



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



CC 38-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 37

IT 516-03-0, Iron oxalate 544-19-4 1335-23-5, Copper iodide  
 3349-06-2 7440-50-8, Copper, uses 7758-89-6, Copper  
 chloride 10210-68-1 11129-27-4, Copper bromide 13939-06-5  
 14040-11-0, Tungsten carbonyl 22829-46-5 23087-58-3  
 23838-02-0 24290-40-2 29604-34-0 64443-05-6

107060-84-4 126956-48-7 134761-87-8, Cobalt oxalate  
 220769-89-1 220769-90-4 259730-05-7 259730-06-8  
 259730-07-9 259730-08-0 259730-09-1 259730-10-4 259730-11-5  
 259730-12-6

(effect of addition of; smoke suppression of PVC by reductive crosslinking)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1997:658584 HCAPLUS Full-text

DOCUMENT NUMBER: 127:294060

ORIGINAL REFERENCE NO.: 127:57487a,57490a

TITLE: Low-Valent Metals as Reductive Crosslinking Agents: A New Strategy for Smoke Suppression of Poly(vinyl chloride)

AUTHOR(S): Pike, Robert D.; Starnes, William H., Jr.; Jeng, J. Paul; Bryant, William S.; Kourtesis, Peter; Adams, Christopher W.; Bunge, Scott D.; Kang, Yun M.; Kim, Andrew S.; Kim, J. Hana; Macko, Jason A.; O'Brien, Charles P.

CORPORATE SOURCE: Departments of Chemistry and Applied Science, College of William and Mary, Williamsburg, VA, 23187-8795, USA

SOURCE: Macromolecules (1997), 30(22), 6957-6965

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 17 Oct 1997

AB Several types of additives that contain transition metals can promote the crosslinking of PVC by a mechanism that apparently involves reductive coupling of the polymer chains. In solid PVC, crosslinking occurs at 200°, and model-compound expts. show that it can be ascribed to the preferential reductive coupling of allylic chloride structures when the coupling agent is Cu(0). However, the concurrent coupling of other chloride moieties has not been entirely ruled out. The evidence for reductive coupling consists of rapid gel formation accompanied by substantial redns. (or minor changes) in the rates of total mass loss (as determined by thermogravimetric anal. measurements), C:C formation (as observed by Fourier transform IR spectroscopy), and HCl evolution (as determined by acid-base titrimetry). Additives that promote the coupling process are sources of a zero- or low-valent metal upon pyrolysis. These additives include a number of transition-metal carbonyls, divalent formates or oxalates of the late transition metals, simple Cu(I) halides, and various complexes of Cu(I) containing phosphites or other ligands. Since the reductive coupling agents tend to have low acidities, they are not expected to promote the cationic cracking of char. Thus they are potentially attractive as replacements for the PVC smoke suppressants that stimulate crosslinking by acting as Lewis acids.

IT 544-19-4, Copper(II) formate 3047-59-4, Iron diformate 3349-06-2, Nickel(II) formate 80480-88-2 197097-70-4 197097-77-1 197097-79-3 197097-81-7 197097-83-9 197097-84-0 197097-86-2 197097-87-3 197097-88-4 197097-89-5

(low-valent metals as reductive crosslinking agents for smoke suppression of poly(vinyl chloride))

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Cu(II)

RN 3047-59-4 HCAPLUS

CN Formic acid, iron(2+) salt (8CI, 9CI) (CA INDEX NAME)



● 1/2 Fe(II)

RN 3349-06-2 HCAPLUS

CN Formic acid, nickel(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Ni(II)

RN 80480-88-2 HCAPLUS

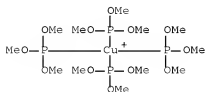
CN Copper(1+), tetrakis(trimethyl phosphite-κP)-, (T-4)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45298-82-6

CMF C12 H36 Cu O12 P4

CCI CCS



CM 2

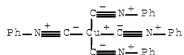
CRN 16919-18-9  
 CME F6 P  
 CCI CCS



RN 197097-70-4 HCAPLUS  
 CN Copper(1+), tetrakis[(isocyano-κC)benzene]-, (T-4)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 56238-20-1  
 CME C28 H20 Cu N4  
 CCI CCS



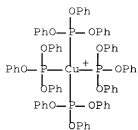
CM 2

CRN 16919-18-9  
 CME F6 P  
 CCI CCS



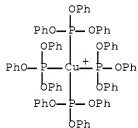
RN 197097-77-1 HCAPLUS  
 CN Copper(1+), tetrakis(triphenyl phosphite-κP)-, chloride, (T-4)-(9CI) (CA INDEX NAME)





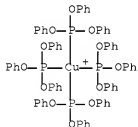
RN 197097-79-3 HCAPLUS

CN Copper(1+), tetrakis(triphenyl phosphite-kP)-, bromide, (T-4)-(9CI) (CA INDEX NAME)



RN 197097-81-7 HCAPLUS

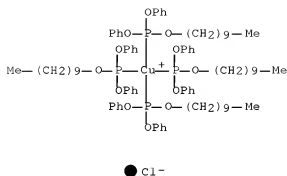
CN Copper(1+), tetrakis(triphenyl phosphite-kP)-, iodide, (T-4)-(9CI) (CA INDEX NAME)



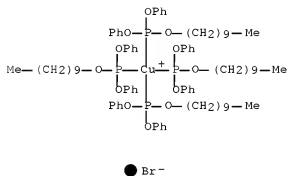
RN 197097-83-9 HCAPLUS

CN Copper(1+), tetrakis(decyl diphenyl phosphite-kP)-, chloride,

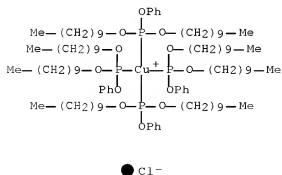
(T-4)- (9CI) (CA INDEX NAME)



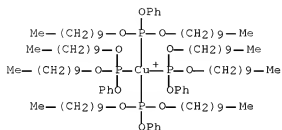
RN 197097-84-0 HCAPLUS

CN Copper(1+), tetrakis(decyl diphenyl phosphite-kP)-, bromide,  
(T-4)- (9CI) (CA INDEX NAME)

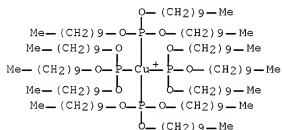
RN 197097-86-2 HCAPLUS

CN Copper(1+), tetrakis(didecyl phenyl phosphite-kP)-, chloride,  
(T-4)- (9CI) (CA INDEX NAME)

RN 197097-87-3 HCAPLUS

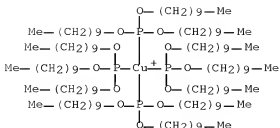
CN Copper(1+), tetrakis(didecyl phenyl phosphite-kP)-, bromide,  
(T-4)- (9CI) (CA INDEX NAME)

RN 197097-88-4 HCAPLUS

CN Copper(1+), tetrakis[tris(decyl) phosphite-kP]-, chloride,  
(T-4)- (9CI) (CA INDEX NAME)

RN 197097-89-5 HCAPLUS

CN Copper(1+), tetrakis[tris(decyl) phosphite-kP]-, bromide, (T-4)-  
(9CI) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)  
 IT 101-02-0, Triphenyl phosphite 516-03-0, Iron oxalate  
 544-19-4, Copper(II) formate 547-67-1, Nickel oxalate  
 603-35-0, Triphenyl phosphine, uses 814-91-5, Copper oxalate  
 1254-78-0, Didecyl phenyl phosphite 2929-86-4 3047-59-4,  
 Iron diformate 3287-06-7, Decyl diphenyl phosphite  
 3349-06-2, Nickel(II) formate 7440-50-8, Copper, uses  
 7447-39-4, Copper dichloride, uses 7646-85-7, Zinc chloride (ZnCl<sub>2</sub>),  
 uses 7681-65-4, Copper(I) iodide 7705-08-0, Ferric chloride, uses  
 7718-54-9, Nickel dichloride, uses 7758-89-6, Copper(I) chloride  
 7758-94-3, Ferrous chloride 7772-99-8, Stannous chloride, uses  
 7787-70-4, Copper(I) bromide 7789-45-9, Copper dibromide  
 10170-69-1, Dimanganese decacarbonyl 10210-68-1, Dicobalt  
 octacarbonyl 13939-06-5, Molybdenum hexacarbonyl 14040-11-0,  
 Tungsten hexacarbonyl 15321-51-4, Diiron nonacarbonyl 64443-05-6,  
 Tetrakis(acetonitrile)copper hexafluorophosphate 80480-88-2  
 134761-87-8, Cobalt oxalate 137002-85-8 197097-70-4  
 197097-74-8 197097-77-1 197097-79-3  
 197097-81-7 197097-83-9 197097-84-0  
 197097-86-2 197097-87-3 197097-88-4  
 197097-89-5

(low-valent metals as reductive crosslinking agents for smoke  
 suppression of poly(vinyl chloride))

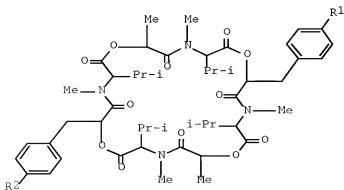
OS.CITING REF COUNT: 44 THERE ARE 44 CAPLUS RECORDS THAT CITE THIS  
 RECORD (44 CITINGS)  
 REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L19 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1997:321384 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 126:293615  
 ORIGINAL REFERENCE NO.: 126:56869a,56872a  
 TITLE: Preparation of novel cyclic depsiptide PF1022  
 derivatives as anthelmintics  
 INVENTOR(S): Sakanaka, Osamu; Okada, Yumiko; Ohyama, Makoto;  
 Matsumoto, Maki; Takahashi, Masaaki; Murai,  
 Yasushi; Iinuma, Katsuharu; Achim, Harder;  
 Norbert, Mencke  
 PATENT ASSIGNEE(S): Meiji Seika Kaisha, Ltd., Japan  
 SOURCE: PCT Int. Appl., 166 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9711064	A1	19970327	WO 1996-JP2730	19960920
W: AU, BB, BG, BR, BY, CA, CN, CZ, HU, IL, JP, KR, KZ, LK, MX, NO, NZ, PL, RO, RU, SK, TR, UA, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2232668	A1	19970327	CA 1996-2232668	19960920
AU 9670019	A	19970409	AU 1996-70019	19960920
AU 727532	B2	20001214		
CN 1201456	A	19981209	CN 1996-198101	19960920
CN 1082051	C	20020403		
EP 903347	A1	19990324	EP 1996-931283	19960920
EP 903347	B1	20050720		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
BR 9610527	A	19991221	BR 1996-10527	19960920
HU 2000001164	A2	20001128	HU 2000-1164	19960920
HU 2000001164	A3	20010428		
IL 123776	A	20020912	IL 1996-123776	19960920
PL 186168	B1	20031128	PL 1996-326024	19960920
AT 299871	T	20050815	AT 1996-931283	19960920
CZ 295705	B6	20051012	CZ 1998-855	19960920
ES 2246496	T3	20060216	ES 1996-931283	19960920
JP 4001381	B1	20071031	JP 1997-512604	19960920
NO 9801250	A	19980522	NO 1998-1250	19980319
NO 310622	B1	20010730		
US 6329338	B1	20011211	US 1998-43558	19980520
PRIORITY APPLN. INFO.:			JP 1995-244051	A 19950922
			WO 1996-JP2730	W 19960920

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 OTHER SOURCE(S): MARPAT 126:293615  
 ED Entered STN: 21 May 1997  
 GI



- AB Novel PF1022 derivs. which are cyclic depsipeptides represented by general formula [I; R1 = H and R2 = cyanoalkoxy, thiocarbamoylalkoxy, (un)protected aminoalkoxy, N-mono- or N,N-dialkylaminoalkoxy, N,N-bis(alkoxyalkyl)aminoalkoxy, 5- or 6-membered cyclic aminoalkoxy or cyclic aminocarbonyl, or cyclic aminoalkoxycarbonyl containing  $\geq 1$  N atoms and optional O or S in the ring, (un)substituted C2-6 (halo or hydroxy)alkanoyl, N-mono-, or N,N-dialkylcarbamoyl, 5- to 6-membered (un)saturated heterocyclalalkoxy containing  $\leq 3$  heteroatoms in the ring, N-mono-, or N,N-dialkylaminoalkoxycarbonyl, formyloxyalkylcarbonyl, CO2H, tert-Bu, 2-aminothiazolyl, tert-butoxy; or R1 = R2 = group listed in R2] or their salts are useful as vermicides in the prevention of treatment of vermination in humans, pets, and livestock, are prepared. Thus, cyclo[MeLeu-Lac-MeLeu-(RCH2CH2O)PhLac-MeLeu-Lac-MeLeu-PhLac].HCl (II; R = H2N) and MeCHO were hydrogenated over 10% Pd-C in ethanol under normal H pressure for 8 h to give 66.7% II (R = Et2N), which at 0.01 mg/kg p.o. completely controlled *Haemonchus contortus* in sheep.
- IT 141-53-7, Sodium formate  
(preparation of novel cyclic depsipeptide PF1022 derivs. as anthelmintics)
- RN 141-53-7 HCAPLUS
- CN Formic acid, sodium salt (1:1) (CA INDEX NAME)



- IT 544-92-3P, Copper(I) cyanide  
(preparation of novel cyclic depsipeptide PF1022 derivs. as anthelmintics)
- RN 544-92-3 HCAPLUS
- CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



- IC ICM C07D273-00  
ICS A61K031-395
- CC 34-3 (Amino Acids, Peptides, and Proteins)  
Section cross-reference(s): 1, 5
- IT 50-00-0, Formaldehyde, reactions 75-03-6, Ethyl iodide 75-07-0, Acetaldehyde, reactions 75-36-5, Acetyl chloride 95-54-5, o-Phenylenediamine, reactions 97-99-4, Tetrahydrofurfuryl alcohol 98-00-0, Furfuryl alcohol 98-59-9, Tosyl chloride 100-39-0, Benzyl bromide 107-08-4, 1-Iodopropane 108-01-0 110-52-1, 1,4-Dibromobutane 110-91-8, Morpholine, reactions 111-24-0, 1,5-Dibromopentane 115-11-7, reactions 137-07-5, o-Aminothiophenol 141-53-7, Sodium formate 156-87-6, 3-Amino-1-propanol 298-06-6, O,O'-Diethyl dithiophosphate 501-53-1, Benzoyloxycarbonyl chloride 506-59-2, Dimethylamine hydrochloride 541-41-3, Ethyl

chlorocarbonate 542-69-8, 1-Iodobutane 590-17-0, Bromoacetonitrile 622-40-2, 2-Morpholinoethanol 883-40-9, Diphenyldiazomethane 1192-80-9 3099-31-8, 3-Picolyl chloride 4377-33-7, 2-Picolyl chloride 5414-19-7, Bis(2-Bromoethyl) ether 6291-84-5, N-Methyl-1,3-propanediamine 6482-24-2, 2-Bromoethyl methyl ether 7252-83-7, Bromoacetaldehyde dimethyl acetal 10445-91-7, 4-Picolyl chloride 18162-48-6, tert-Butyldimethylsilyl chloride 22483-09-6, Aminoacetaldehyde dimethyl acetal 23356-96-9, (S)-Pyrrolidine-2-methanol 24424-99-5, Di-tert-butyl dicarbonate 32673-41-9, 4-(Hydroxymethyl)imidazole hydrochloride 53362-89-6, Boc-MeLeu-OH 101990-73-2, 2-Chloro-4-chloromethylpyridine 133413-70-4, PF1022 155030-71-0, PF 1022H 157567-62-9 170721-83-2 189130-85-6, 3-Chloromethyl-5-isobutyl-1,2,4-oxadiazole 189130-87-8, 3-Chloromethyl-5-isopropyl-1,2,4-oxadiazole 189130-88-9, 3-Chloromethyl-5-cyclohexyl-1,2,4-oxadiazole

(preparation of novel cyclic depsipeptide PF1022 derivs. as anthelmintics)

IT 544-92-3P, Copper(I) cyanide 949-99-5P 34637-22-4P, 3-Benzoyloxycarbonylamino-1-propanol 68671-47-6P 69610-40-8P 120277-50-1P 170565-87-4P 189130-78-7P 189130-79-8P 189130-80-1P 189130-81-2P 189130-82-3P 189130-83-4P 189130-84-5P 189130-89-0P 189130-90-3P 189130-91-4P 189130-92-5P 189130-93-6P 189130-94-7P 189130-96-9P 189130-98-1P 189131-01-9P 189131-02-0P 189131-04-2P 189131-05-3P 189131-06-4P 189131-07-5P 189131-08-6P 189131-09-7P 189131-10-0P 189131-11-1P

(preparation of novel cyclic depsipeptide PF1022 derivs. as anthelmintics)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:622795 HCAPLUS Full-text

DOCUMENT NUMBER: 125:250307

ORIGINAL REFERENCE NO.: 125:46765a,46768a

TITLE: Manufacture of aramid with good dimensional stability in moisture absorption by addition of metal salts

INVENTOR(S): Matsuki, Toshitsugu

PATENT ASSIGNEE(S): Teijin Ltd, Japan

SOURCE: Jpn. Kokai Tokyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08199433	A	19960806	JP 1995-6354	19950119
JP 3450075	B2	20030922		

PRIORITY APPLN. INFO.: JP 1995-6354 19950119

ED Entered STN: 19 Oct 1996

AB Title fibers, useful for printed circuit boards, belts, etc., are prepared by wet spinning of raw materials and impregnating with Li2S04, Na2S04, K2S04, LiCl, NaCl, KCl, CaCl2, CuAc2, CuI, CuI2, CuCl, CuCl2, Cu citrate, CuCN, Cu 4-

cyclohexylbutyrate, Cu(II) ammonium chloride, Cu diphosphate,  $\text{CuF}_2$ ,  $\text{Cu}(\text{HCO}_2)_2$ , Cu(II) gluconate,  $\text{Cu}(\text{OH})_2$ , CuI, Cu naphthenate,  $\text{Cu}(\text{NO}_3)_2$ , Cu oleate, Cu(II) oxalate,  $\text{Cu}_2\text{O}$ , CuO, Cu(II) phosphate, Cu(II) phthalate, Cu K chloride,  $\text{CuSO}_4$ , basic Cu sulfate,  $\text{CuS}_2$ ,  $\text{CuSCN}$ ,  $\text{CuClO}_4$ , Cu tartrate, Cu isophthalate, or Cu stearate before drying. Thus, 1506:2789:5658 p-phenylenediamine-3,4'-diaminodiphenyl ether-terephthaloyl chloride copolymer dope was wet spun, washed with water, passed through 1%  $\text{Na}_2\text{SO}_4$  solution, dried, drawn, and wound to give 1500-denier fiber showing good dimensional stability in wet conditions.

IT 544-19-4, Cupric formate 544-92-3, Cuprous cyanide  
(manufacture of aramid with dimensional stability in moisture absorption by wet spinning and impregnation with metal salts)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)

$\text{C}=\text{CH}-\text{OH}$

● 1/2 Cu(II)

RN 544-92-3 HCAPLUS

CN Copper cyanide ( $\text{Cu}(\text{CN})$ ) (CA INDEX NAME)

$\text{Cu}-\text{C}=\text{N}$

IC ICM D01F011-08

ICS D01F006-60; D06M011-56

IC1 D06M101-36

CC 40-7 (Textiles and Fibers)

IT 142-71-2, Cupric acetate 527-09-3, Cupric gluconate  
544-19-4, Cupric formate 544-92-3, Cuprous cyanide  
814-91-5, Cupric oxalate 866-82-0, Cupric citrate 1111-67-7,  
Cuprous thiocyanate 1120-44-1, Cupric oleate 1317-38-0, Cupric  
oxide, uses 1317-39-1, Cuprous oxide, uses 1317-40-4, Cupric  
sulfide 1332-14-5, Basic cupric sulfate 2218-80-6 3251-23-8,  
Cupric nitrate 7447-39-4, Cupric chloride, uses 7447-40-7,  
Potassium chloride, uses 7447-41-8, Lithium chloride, uses  
7617-31-4, Copper stearate 7647-14-5, Sodium chloride, uses  
7681-65-4, Cuprous iodide 7757-82-6, Sodium sulfate, uses  
7758-89-6, Cuprous chloride 7758-98-7, Cupric sulfate, uses  
7778-80-5, Potassium sulfate, uses 7787-70-4, Cuprous bromide  
7789-19-7, Cupric fluoride 7789-45-9, Cupric bromide 7798-23-4,  
Cupric phosphate 10027-30-2, Cupric phthalate 10043-52-4, Calcium  
chloride, uses 10377-48-7, Lithium sulfate 10534-87-9, Cupric  
ammonium chloride 13877-25-3 15715-48-7 19372-21-5 20427-59-2,  
Cupric hydroxide 27004-40-6, Copper tartrate 40974-00-3, Copper  
perchlorate  
(manufacture of aramid with dimensional stability in moisture absorption by wet spinning and impregnation with metal salts)



L19 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1995:763839 HCAPLUS Full-text  
 DOCUMENT NUMBER: 123:152907  
 ORIGINAL REFERENCE NO.: 123:27049a,27052a  
 TITLE: Antimicrobial method and cosmetic composition  
 INVENTOR(S): Nishino, Takeshi; Otsu, Yoshiro; Arima, Yaeno;  
 Nakai, Yoriko  
 PATENT ASSIGNEE(S): Otsuka Pharmaceutical Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., '71 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9513057	A1	19950518	WO 1994-JP1911	19941111
W: AU, CN, KR, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 07138155	A	19950530	JP 1993-283069	19931112
JP 07173053	A	19950711	JP 1993-319409	19931220
AU 9481162	A	19950529	AU 1994-81162	19941111
EP 728478	A1	19960828	EP 1995-900291	19941111
R: DE, ES, FR, GB, NL				
CN 1139879	A	19970108	CN 1994-194727	19941111
PRIORITY APPLN. INFO.:			JP 1993-283069	A 19931112
			JP 1993-319409	A 19931220
			WO 1994-JP1911	W 19941111

ED Entered STN: 30 Aug 1995  
 AB An antimicrobial method uses a composition having excellent antimicrobial activity and photostability, reduced toxicity, and extremely suppressed side effects. The composition contains at least one member selected from among copper compds., hinokitiol and salts thereof or at least one member selected from among copper or zinc complexes of hinokitiol and salts thereof.  
 IT 544-19-4, Copper diformate 544-92-3, Copper cyanide  
 (antimicrobial compns. for manufacturing pharmaceuticals and cosmetics)  
 RN 544-19-4 HCAPLUS  
 CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)

CH—OH

● 1/2 Cu(II)

RN 544-92-3 HCAPLUS  
 CN Copper cyanide (Cu(CN)) (CA INDEX NAME)

Cu—C—N

IC ICM A61K031-12  
ICS A61K007-48; A61K007-00  
CC 63-6 (Pharmaceuticals)  
Section cross-reference(s): 1, 62

IT 59-67-6D, Nicotinic acid, copper salt 98-92-0D, Nicotinamide, copper complex 98-98-6D, Picolinic acid, copper salt 142-71-2, Copper acetate 499-44-5, Hinokitiol 499-44-5D, Hinokitiol, copper or zinc complexes 527-09-3, Copper gluconate 544-19-4, Copper diformate 544-92-3, Copper cyanide 814-91-5, Copper oxalate 1111-67-7, Copper thiocyanate 1120-44-1, Copper dioleate 1184-64-1, Copper carbonate 1317-38-0, Copper oxide, biological studies 1452-77-3D, Picolinic acid amide, copper complex 3251-23-8, Copper dinitrate 4441-63-8D, 4-Cyclohexylbutyric acid, copper salt 7440-50-8D, Copper, compds. 7440-50-8D, Copper, complexes with hinokitiol 7440-50-8D, Copper, hinokitiol complex 7440-50-8D, Copper, sulfocyanate 7440-66-6D, Zinc, complexes with hinokitiol 7681-65-4, Copper moniodide 7758-89-6, Copper chloride 7758-98-7, Copper sulfate, biological studies 7787-70-4D, Copper monobromide, di-Me sulfate complex 7789-19-7, Copper difluoride 7789-45-9, Copper dibromide 10402-15-0, Copper citrate 11115-78-9, Copper sulfide 15739-09-0 16223-74-8, Copper phthalate 20427-59-2, Copper hydroxide 30981-48-7, Copper phosphate 65722-60-3, Ammonium copper chloride (antimicrobial compns. for manufacturing pharmaceuticals and cosmetics)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1995:348571 HCAPLUS Full-text  
DOCUMENT NUMBER: 123:168973  
ORIGINAL REFERENCE NO.: 123:30151a, 30154a  
TITLE: Pd(0)-catalyzed hydrogenolysis of allylic and dienylcyclic carbonates: synthesis of optically active homoallylic alcohols and allylic alcohols  
AUTHOR(S): Kang, Suk-Ku; Park, Dong-Chul; Rho, Ho-Sik; Yu, Chan-Mo; Hong, Jang-Hoo  
CORPORATE SOURCE: Dep. Chem., Sung Kyun Kwan Univ., Suwon, 440-746, S. Korea  
SOURCE: Synthetic Communications (1995), 25(2), 203-14  
CODEN: SYNCV; ISSN: 0039-7911  
PUBLISHER: Dekker  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 123:168973  
ED Entered STN: 11 Feb 1995

AB Treatment of chiral allylic carbonates with ammonium formate in the presence of Pd(0) catalyst afforded optically active homoallylic alcs. with excellent regioselectivity. However, hydrogenolysis of dienylcyclic carbonates in the presence of Pd(0) catalyst afforded conjugated or nonconjugated (E)-dienylcyclic alcs. depending on Pd complexes used. Using homoallylic alc. I as a chiral synthon, (R)-(+)-eldanolid, the sex pheromone of the African sugarcane stem borer, Eldana saccharina, was synthesized.

IT 544-92-3, Copper cyanide (Cu(CN))  
(Pd(0)-catalyzed hydrogenolysis of allylic and dienylcyclic

carbonates in preparation of optically active homoallylic alcs. and allylic alcs.)

RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



IT 540-69-2, Ammonium formate

(Pd(0)-catalyzed hydrogenolysis of allylic and dienylcyclic carbonates in preparation of optically active homoallylic alcs. and allylic alcs.)

RN 540-69-2 HCAPLUS

CN Formic acid, ammonium salt (1:1) (CA INDEX NAME)



CC 21-2 (General Organic Chemistry)

Section cross-reference(s): 26

IT 109-63-7 544-92-3, Copper cyanide (Cu(CN)) 998-40-3,

Tributylphosphine 14024-61-4 14221-01-3 52522-40-4

(Pd(0)-catalyzed hydrogenolysis of allylic and dienylcyclic carbonates in preparation of optically active homoallylic alcs. and allylic alcs.)

IT 540-69-2, Ammonium formate 1826-67-1, Vinylmagnesium

bromide 15681-48-8 144536-31-2 156558-01-9 162329-60-4

162427-95-4 167280-14-0 167280-22-0 167280-23-1 167280-24-2

167358-06-7 167358-07-8

(Pd(0)-catalyzed hydrogenolysis of allylic and dienylcyclic carbonates in preparation of optically active homoallylic alcs. and allylic alcs.)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

L19 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1994:111514 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 120:111514

ORIGINAL REFERENCE NO.: 120:19631a, 19634a

TITLE: Oxychlorination catalyst, process for preparing the catalyst and method of oxychlorination with use of the catalyst

INVENTOR(S): Komatsu, Masashi; Yamamoto, Michio; Ishino, Masaru; Suzukamo, Gohfu

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 577059	A1	19940105	EP 1993-110329	19930629
EP 577059	B1	19970924		
R: CH, DE, FR, GB, IT, LI, NL				
JP 06009445	A	19940118	JP 1992-172465	19920630
JP 3092330	B2	20000925		
US 5334789	A	19940802	US 1993-83502	19930630
PRIORITY APPLN. INFO.:			JP 1992-172465	A 19920630

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 05 Mar 1994

AB The title catalyst comprises a porous support, and a Pd compound, a Cu compound and a V compound, optionally with alkaline earth metal compd.loaded on the support. Aromatic hydrocarbons or olefins are oxychlorinated over the catalyst at a mol ratio of the feeds/HCl/O<sub>2</sub> of 1:(0.1-10):(0.05-5). In one embodiment, the catalyst is calcined in an O<sub>2</sub>-containing gas or N atmospheric at 200-700° before oxychlorination reaction.

IT 541-43-5, Barium formate 544-92-3, Cuprous cyanide 592-89-2, Strontium formate 4367-08-2, Cupric cyanide (catalysts containing, for oxychlorination of aromatic hydrocarbons or olefins)

RN 541-43-5 HCAPLUS

CN Formic acid, barium salt (8CI, 9CI) (CA INDEX NAME)

C=CH-OH

● 1/2 Ba

RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)

Cu-C

RN 592-89-2 HCAPLUS

CN Formic acid, strontium salt (2:1) (CA INDEX NAME)

C=CH-OH

● 1/2 Sr

RN 4367-08-2 HCAPLUS

CN Copper cyanide (Cu(CN)2) (9CI) (CA INDEX NAME)

N—C—Cu—C—N

IC ICM B01J023-89  
ICS C07C017-156

CC 51-9 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 45, 67

IT 62-54-4, Calcium acetate 142-71-2, Copper acetate (Cu(OAc)2)  
142-72-3, Magnesium acetate 541-43-5, Barium formate  
544-92-3, Cuprous cyanide 553-70-8, Magnesium benzoate  
557-27-7, Magnesium propionate 592-89-2, Strontium formate  
1184-64-4, Copper carbonate (CuCO3) 1314-08-5, Palladium oxide (PdO)  
1314-34-7, Vanadium oxide (V2O3) 1314-62-1, Vanadium pentoxide  
(V2O5), uses 1317-38-0, Copper oxide (CuO), uses 1317-39-1,  
Cuprous oxide (Cu2O), uses 2035-66-7, Palladium dicyanide  
3251-23-8, Copper nitrate (Cu(NO3)2) 3375-31-3, Palladium acetate  
(Pd(OAc)2) 3386-65-0, Palladium propionate 4075-81-4, Calcium  
propionate 4367-08-2, Cupric cyanide 7447-39-4, Copper  
chloride (CuCl2), uses 7487-88-9, Magnesium sulfate (MgSO4), uses  
7632-51-1, Vanadium tetrachloride (VCl4) 7727-18-6, Vanadium  
oxychloride (VOCl3) 7727-43-7, Barium sulfate 7758-98-7, Copper  
sulfate (CuSO4), uses 7759-02-6, Strontium sulfate (SrSO4)  
7786-30-3, Magnesium chloride (MgCl2), uses 7787-70-4, Copper  
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Copper bromide (CuBr2) 7789-48-2, Magnesium bromide (MgBr2)  
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((NH4VO3) 10022-31-8, Barium nitrate 10042-76-9, Strontium nitrate  
10043-52-4, Calcium chloride (CaCl2), uses 10102-05-3, Palladium  
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Calcium nitrate 10361-37-2, Barium chloride (BaCl2), uses  
10377-58-9, Magnesium iodide (MgI2) 10377-60-3, Magnesium nitrate  
10476-81-0, Strontium bromide (SrBr2) 10476-85-4, Strontium chloride  
(SrCl2) 10476-86-5, Strontium iodide (SrI2) 10553-31-8, Barium  
bromide (BaBr2) 12036-21-4, Vanadium oxide (VO2) 12135-22-7,  
Palladium hydroxide (Pd(OH)2) 13444-94-5, Palladium bromide (PdBr2)  
13517-26-5, Sodium vanadate (Na4V2O7) 13566-03-5, Palladium sulfate  
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vanadate (Na3VO4) 13767-71-0, Copper iodide (CuI2) 14986-47-1,  
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20427-59-2, Copper hydroxide (Cu(OH)2) 27774-13-6, Vanadium  
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Palladium butanoate  
(catalysts containing, for oxychlorination of aromatic hydrocarbons or  
olefins)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS  
RECORD (2 CITINGS)

L19 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:88646 HCAPLUS Full-text  
DOCUMENT NUMBER: 118:88646  
ORIGINAL REFERENCE NO.: 118:15427a  
TITLE: Heat capacities and entropies of organic compounds  
in the condensed phase. Volume II  
AUTHOR(S): Domalski, Eugene S.; Hearing, Elizabeth D.  
CORPORATE SOURCE: Cent. Chem. Phys., Natl. Inst. Stand. Technol.,

SOURCE: Gaithersburg, MD, 20899, USA  
 Journal of Physical and Chemical Reference Data  
 (1990), 19(4), 881-1047  
 CODEN: JPCRB; ISSN: 0047-2689

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

ED Entered STN: 02 Mar 1993

AB A review with 565 refs. including heat capacities, entropies, and thermodyn. parameters for phase transitions for >1100 organic compds.

IT 141-53-7, Sodium formate 992-98-3, Thallium formate 5256-77-9, Copper vinylacetylenide 5893-61-8, Copper (II) formate tetrahydrate 13146-23-1, Copper phenylacetylenide 14690-98-3, Copper (II) formate tetradeuterate 33589-44-5 34993-58-3 66582-10-3  
 (thermodyn. properties of)

RN 141-53-7 HCAPLUS

CN Formic acid, sodium salt (1:1) (CA INDEX NAME)

$$\text{C}\equiv\text{CH}-\text{OH}$$

$$\bullet \text{Na}$$

RN 992-98-3 HCAPLUS

CN Formic acid, thallium(1+) salt (1:1) (CA INDEX NAME)

$$\text{C}\equiv\text{CH}-\text{OH}$$

$$\bullet \text{Tl(I)}$$

RN 5256-77-9 HCAPLUS

CN Copper, 3-buten-1-ynyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

$$\text{CH}-\text{C}\equiv\text{C}-\text{CH}\equiv\text{CH}_2$$

RN 5893-61-8 HCAPLUS

CN Formic acid, copper(2+) salt, tetrahydrate (8CI, 9CI) (CA INDEX NAME)



● 1/2 Cu (II)

● 2 H<sub>2</sub>O

RN 13146-23-1 HCAPLUS

CN Copper, (phenylethynyl)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 14690-98-3 HCAPLUS

CN Formic acid, copper(2+) salt, tetra(hydrate-d2) (8CI, 9CI) (CA INDEX NAME)



● 1/2 Cu (II)

● 2 D<sub>2</sub>O

RN 33589-44-5 HCAPLUS

CN Copper, 1-hexyn-1-yl- (CA INDEX NAME)



RN 34993-58-3 HCAPLUS

CN Copper, (4-phenyl-1,3-butadiynyl)- (9CI) (CA INDEX NAME)



RN 66582-10-3 HCAPLUS

CN Copper, (3-phenyl-1-propyn-1-yl)- (CA INDEX NAME)

- CC 69-0 (Thermodynamics, Thermochemistry, and Thermal Properties)  
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- IT 108-95-2, Phenol, properties 109-05-7, 2-Methylpiperidine  
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 613-31-0, 9,10-Dihydroanthracene 615-42-9, 1,2-Diiodobenzene  
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 630-03-5, Nonacosane 630-06-8, Hexatriacontane 630-19-3,  
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 (thermodn. properties of)  
 IT 7346-41-0, 2-Chloroadamantane 7434-35-7, Perdeuterated triglycine  
 sulfate 7782-40-3, Diamond, properties 7782-42-5, Graphite,  
 properties 9002-85-1, Polyvinylidene chloride 9002-86-2, Polyvinyl  
 chloride 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol  
 9003-17-2 9003-27-4, Polyisobutylene 9003-53-6, Polystyrene  
 9004-70-0, Cellulose nitrate 9011-14-7, Poly(methyl methacrylate)  
 9043-05-4 10051-96-4, Trisarcosine calcium chloride 10323-20-3,  
 D-Arabinose 10368-91-9 10500-57-9, 5,6,7,8-Tetrahydroquinoline  
 11077-12-6, Azaferrocene 11077-24-0, Ferrocenium hexafluorophosphate  
 11078-19-6, Bis(benzene)chromium chloride 11105-79-6 12070-79-0  
 12078-15-8 12078-16-9 12079-65-1, Cymantrene 12082-08-5, Benzene  
 chromium tricarboxyl 12082-87-0, Ferrocene-d10 12087-59-1,  
 Bis(toluene)chromium iodide 12089-29-1, Bis(benzene)chromium iodide  
 12099-17-1, Bis(biphenyl)chromium iodide 12121-86-7 12148-59-3,

Bis(mesitylene)chromium iodide 12156-67-1 12176-31-7 12257-73-7,  
 Bis(ethylbenzene)chromium iodide 13146-23-1, Copper  
 phenylacetylenide 13373-97-2, 1-Eicosanethiol 13475-82-6,  
 2,2,4,6,6-Pentamethylheptane 13509-52-9, 1,3,6-Trimethyluracil  
 13963-57-0, Aluminum acetylacetonate 14024-18-1, Iron(III)  
 acetylacetonate 14024-63-6, Zinc acetylacetonate 14167-59-0,  
 Tetraethiacetane 14240-75-6, Tetraethylammonium tetrachloroferrate  
 14618-78-1, 1,1-Dimethoxy-3-cyanopropane 14637-34-4  
 14690-98-3, Copper (II) formate tetrahydrate 14722-82-8,  
 2-Chloroisotinonisoacetanilide 14879-21-1 14879-23-3 14901-07-6  
 14965-49-2, Methylammonium iodide 15649-95-3, Tetramethylammonium  
 tetrachloroferrate 15721-10-5, p-Methacryloyloxybenzoic acid  
 15844-05-0, Homocubane-4-carboxylic acid 16093-77-9 16093-78-0  
 16577-51-8, Lithium hexanoate 16594-83-5 16647-05-5 16649-52-8  
 16674-78-5, Magnesium diacetate tetrahydrate 16674-79-6, Strontium  
 dicalcium propionate 16761-13-0, Lithium heptanoate 16825-16-4,  
 Phytone 16986-24-6, m-Carborane 17082-12-1, trans-Azobenzene  
 17115-98-9, Barium dicalcium propionate 17122-74-6,  
 4-Ethoxyisotinonisoacetanilide 17203-66-6, Lead dicalcium propionate  
 17356-96-6 17501-44-9, Zirconium acetylacetonate 18001-46-2  
 18030-61-0, p-Trichlorosilylbiphenyl 18254-57-4,  
 1,1-Dicyclohexyldodecane 18343-40-3, Hexaphenylmelamine 18616-15-4  
 18993-50-5 18993-51-6 18993-52-7 18993-53-8 19032-64-5  
 19049-40-2, Beryllium oxyacetate 19261-73-5 19269-28-4,  
 3-Methylhexanal 19288-59-6, Phenylaminoethyl methacrylate  
 19353-21-0, 3,4-Dimethylpentanal 19361-62-7, Styrene-d8  
 19455-20-0, Potassium 2-methylpropanoate 19479-83-5 20030-30-2  
 20267-19-0, 2-Hydroxyethyl pivalate 20267-21-4 20321-02-2,  
 Hydrazinium hydrogen oxalate 21279-19-6, Tetraethylammonium  
 tetrabromoferrate 21303-03-7, Lithium butyrate 21482-12-2,  
 Pentapropylene glycol 21679-31-2, Chromium acetylacetonate  
 22428-30-4 22808-06-6, 2,2,5,5-Tetramethylhex-3-ene 23014-56-4,  
 1,1,10,10-Tetramethylcyclooctadecane 23014-57-5 23307-02-0  
 23358-17-0 23672-37-9 23672-38-0 24028-46-4 24800-44-0,  
 Tripropylene glycol 24888-58-2 24936-97-8 24968-12-5,  
 Poly(butylene terephthalate) 24979-97-3, Polytetrahydrofuran  
 24991-43-3, Butadiene-propylene copolymer 25014-31-7,  
 Poly( $\alpha$ -methylstyrene 25036-32-2, Polyvinyltrimethylsilane  
 25038-54-4, Poly[imino(1-oxo-1,6-hexanediyl)], properties  
 25067-06-5, 1-Polyhexene 25067-58-7, Polyacetylene 25067-64-5,  
 Poly-1,3-dioxolane 25068-01-3, Ethylene-butadiene copolymer  
 25085-53-4 25087-26-7, Polymethacrylic acid 25214-70-4  
 25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)] 25265-71-8, Dipropylene  
 glycol 25322-68-3 25456-55-7 25657-08-3, Tetrapropylene glycol  
 25686-28-6 25734-27-4, Poly[imino(1-oxo-1,2-ethanediyl)]  
 25853-28-5 25926-96-9 25926-99-2 25959-51-7 26202-08-4,  
 Polyglycolide 26227-73-6 26692-50-2 26715-68-4 26744-16-1,  
 Polyvinylidimethylphenylsilane 26745-88-0, Poly(hexamethylene  
 sebacate) 26760-54-3 26762-10-7, Poly(hexamethylene sebacate)  
 27426-98-8 27613-96-3 27732-42-9, Polystyrene-d8 27974-49-8,  
 $\beta$ -Selenodiglycol 28182-81-2 28183-09-7 28323-47-9,  
 Poly(diethylsiloxane) 28500-27-8 28576-60-5 28702-26-3  
 28702-43-4, Poly(1-pentene-1,5-diyl) 28702-45-6,  
 Poly(1-octene-1,8-diyl) 28726-71-8 29171-20-8 29412-62-2  
 29415-95-0, Manxane 29743-08-6 29743-10-0 29743-11-1  
 30209-80-4 31295-54-2 31401-34-0 31693-72-8 32761-36-7,  
 Azacymantrene 33440-88-9 33589-44-5 33734-55-3  
 33734-56-4 34028-37-0 34244-89-8 34244-90-1 34244-91-2  
 34244-92-3, Thallium nonanoate 34375-89-8, 3-Methylpyrrolidine  
 34504-12-6 34507-12-5, Wurster's Blue perchlorate

34993-58-3 35165-78-7, Bis(m-xylene)chromium iodide  
 35280-78-5 35602-69-8, Cholesteryl stearate 35705-97-6  
 35812-56-7 36376-18-8 36653-82-4, 1-Hexadecanol 37196-91-1  
 37541-72-3, Ammonium hydrogen oxalate hemihydrate 37869-35-5,  
 Hexamethyltrisilazane 38332-83-1 38423-62-0,  
 2-Ethoxyisonitrosoacetanilide 38454-35-2 38869-19-1 38974-20-8  
 39015-36-6 39060-95-2, 2,2'-Biindanyl 39470-17-2, Biferrocenium  
 triiodide 40317-63-3 40937-40-4, Methylammonium  
 hexachlorotellurate 41902-42-5, Tri-tert-Butylmethanol 42182-84-3  
 42182-87-6 42525-64-4 42572-91-8 47189-08-2 52709-84-9  
 52709-85-0 52794-80-6, Hexapropylene glycol 52910-78-8  
 53188-90-2 53261-61-3 55011-91-1, Thiourea nitrate 55671-71-1  
 56379-16-9 56544-26-4 56685-61-1 56993-57-8 57863-11-3  
 57863-12-4 57947-14-5 58675-48-2 58675-49-3 58675-50-6  
 59358-70-2 59358-71-3 59358-73-5 59454-35-2 59683-18-0  
 59789-07-0 59890-70-9 60046-87-9 60130-27-0,  
 Poly[(diphenylgermylene)-1,2-ethenediyl] 60435-70-3,  
 2-Methyl-1-heptanol 60970-45-8 61361-56-6 62155-50-4  
 62629-77-0 63287-55-8 63335-41-1  
 (thermodn. properties of)  
 IT 63424-48-6 63424-49-7 63441-99-6 64167-86-8 65201-70-9  
 65201-71-0 65445-09-2 65860-74-4 66160-69-8,  
 Poly[(diphenylsilylene)-1,2-ethenediyl] 66160-70-1 66167-13-3  
 66414-48-0 66582-10-3 67143-09-3 67194-30-3  
 69655-76-1 70285-56-2 70351-94-9 71203-37-7 71203-38-8  
 71203-39-9 71203-40-2 71203-41-3 71203-42-4 71203-43-5  
 71332-83-7 71332-84-8 71332-85-9 71332-86-0 72172-70-4,  
 Polytiazine 73138-26-8, Manganocene 73170-02-2 73180-46-8  
 73746-94-8 74438-86-1 75511-51-2 75511-55-6 75511-57-8  
 75899-75-1 76204-55-2 76204-56-3 76204-57-4 76204-58-5  
 76204-59-6 76204-61-0 76204-62-1 76204-63-2 76204-64-3  
 76204-65-4 76204-68-7 76212-79-8 76585-14-3 80732-79-2  
 82234-36-4, Methyl trichlorothioacrylate 84741-01-5 85131-86-8  
 85490-99-9,  $\beta$ -Cyclodextrin undecahydrate 85668-72-0  
 85668-73-1 85668-75-3 85668-76-4 86011-33-8 88269-10-7  
 88529-43-5 89037-75-2 89187-04-2 90836-90-1 91628-64-7  
 92341-23-6 92341-24-7 92341-25-8 92341-26-9 92341-27-0  
 92341-28-1 92341-29-2 98566-49-5 99409-67-3 99914-84-8  
 99916-30-0 106418-16-0 108339-57-7 110505-51-6 114481-22-0  
 120660-76-6 123350-88-9 133827-91-5 145276-96-6 145276-97-7  
 145276-98-8 145276-99-9 145277-00-5 145277-01-6 145277-02-7  
 145277-03-8 145277-04-9 145277-05-0 145709-01-9  
 (thermodn. properties of)

OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS  
 RECORD (33 CITINGS)

L19 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1992:214493 HCAPLUS Full-text

DOCUMENT NUMBER: 116:214493

ORIGINAL REFERENCE NO.: 116:36353a,36356a

TITLE: Preparation of  
 N-aryl-3-aryl-4-substituted-4,5-dihydro-1H-pyrazol  
 e-1-carboxamides as pesticides

INVENTOR(S): Jacobson, Richard Martin

PATENT ASSIGNEE(S): Rohm and Haas Co., USA

SOURCE: Eur. Pat. Appl., 84 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

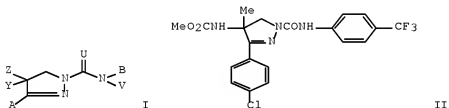
## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 466408	A1	19920115	EP 1991-306113	19910704
EP 466408	B1	20000112		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 188690	T	20000115	AT 1991-306113	19910704
ES 2143459	T3	20000516	ES 1991-306113	19910704
CA 2046420	A1	19920114	CA 1991-2046420	19910705
AU 9180313	A	19920116	AU 1991-80313	19910710
AU 652762	B2	19940908		
ZA 9105394	A	19920325	ZA 1991-5394	19910711
BR 9102980	A	19920211	BR 1991-2980	19910712
HU 58702	A2	19920330	HU 1991-2355	19910712
JP 06080642	A	19940322	JP 1991-172304	19910712
JP 3321186	B2	20020903		
AU 9480323	A	19950413	AU 1994-80323	19941208
AU 680315	B2	19970724		
PRIORITY APPLN. INFO.:			US 1990-553220	A 19900713
			US 1991-713692	A 19910617

OTHER SOURCE(S): MARPAT 116:214493

ED Entered STN: 31 May 1992

GI



- AB Title compds. [I; A = (hetero)aryl; Y = isothiocyanato, isocyano, amino, alkanoyloxy, alkoxy, PhO, alkylthio, phenylthio; Z = H, alkyl; B = (hetero)aryl; U = O, S; V = H, alkyl, alkoxyalkyl, alkylthioalkyl, CHO, alkylcarbonyl, CO<sub>2</sub>H, PhO, alkoxycarbonyloxy, alkylsulfonyl, PhS, etc.], were prepared Thus, N-(4-trifluoromethylphenyl)-3-(4-chlorophenyl)-4-carbomethoxy-4-methyl-4,5-dihydro-1H-pyrazole-1-carboxamide was converted successively to the 4-acid, 4-carbonyl chloride, 4-azidocarbonyl derivative, 4-isocyanato derivative and finally to title carboxamide II. II as 600 ppm sprays gave complete control of *Epilachna varivestis*, *Spodoptera eridonia*, and *Anthonomus grandis grandis*.
- IT 544-92-3, Cuprous cyanide  
(cyanation by, of chloropropoxyethane)
- RN 544-92-3 HCAPLUS
- CN Copper cyanide (Cu(CN)) (CA INDEX NAME)

C10—C11=N

IT 89806-44-0P  
 (preparation of, as pesticide intermediate)  
 RN 89806-44-0 HCAPLUS  
 CN Acetic acid, formate (1:1) (CA INDEX NAME)

CM 1

CRN 108-24-7  
 CMF C4 H6 O3

Ac—O—Ac

CM 2

CRN 64-18-6  
 CMF C H2 O2

O—CH—OH

IC ICM C07D231-06  
 ICS A01N043-56; C07D213-46; C07D307-58; C07D275-02; C07D277-34;  
 C07C049-225  
 CC 28-8 (Heterocyclic Compounds (More Than One Hetero Atom))  
 Section cross-reference(s): 5  
 IT 544-92-3, Cuprous cyanide  
 (cyanation by, of chloropropoxyethane)  
 IT 692-35-3P 5736-86-7P 24437-48-7P 24437-53-4P 30780-45-1P  
 41806-25-1P 53704-74-8P 83882-67-1P 89806-44-0P  
 116836-23-8P 129139-89-5P 131824-42-5P 141131-84-2P  
 141134-14-7P 141134-15-8P 141134-16-9P 141134-17-0P  
 141134-18-1P 141134-19-2P 141134-20-5P 141134-21-6P  
 141134-22-7P 141134-23-8P 141134-24-9P 141134-25-0P  
 141134-26-1P 141134-27-2P 141134-28-3P 141134-29-4P  
 141134-30-7P 141134-31-8P 141134-32-9P 141134-33-0P  
 141134-34-1P 141134-35-2P 141134-36-3P 141134-37-4P  
 141134-38-5P 141134-39-6P 141134-40-9P 141134-41-0P  
 141134-42-1P 141134-43-2P 141134-44-3P 141134-45-4P  
 141134-46-5P 141134-47-6P 141134-48-7P 141134-49-8P  
 (preparation of, as pesticide intermediate)  
 OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS  
 RECORD (3 CITINGS)

L19 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1990:430168 HCAPLUS Full-text  
 DOCUMENT NUMBER: 113:30168  
 ORIGINAL REFERENCE NO.: 113:5083a,5086a  
 TITLE: Calculation of the enthalpies of formation of  
 crystalline transition metal salts  
 AUTHOR(S): Kasenov, B. K.

CORPORATE SOURCE: USSR  
 SOURCE: Tsvetnye Metally (Moscow, Russian Federation)  
 (1990), (3), 44-6  
 CODEN: TVMTAX; ISSN: 0372-2929  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 ED Entered STN: 21 Jul 1990  
 AB A method based on additivity of enthalpic increments for ions is developed for  
 the calcn. of the heats of formation of transition metal salts. Contribution  
 factors for the ions are tabulated as well as the calculated heats of  
 formation of 72 salts.  
 IT 3047-59-4, Ferrous formate 4367-08-2, Copper  
 cyanide (Cu(CN)2) 27115-36-2, Chromium formate  
 84973-21-7  
 (heat of formation of)  
 RN 3047-59-4 HCAPLUS  
 CN Formic acid, iron(2+) salt (8CI, 9CI) (CA INDEX NAME)



RN 4367-08-2 HCAPLUS  
 CN Copper cyanide (Cu(CN)2) (9CI) (CA INDEX NAME)



RN 27115-36-2 HCAPLUS  
 CN Formic acid, chromium(3+) salt (3:1) (CA INDEX NAME)



RN 84973-21-7 HCAPLUS  
 CN Formic acid, mercury(2+) salt (9CI) (CA INDEX NAME)





CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)  
 IT 516-03-0, Ferrous oxalate 542-84-7, Cobalt cyanide (co(cn)2)  
 547-68-2, Zinc oxalate 628-52-4 814-89-1, Cobalt oxalate  
 814-91-5 1184-64-1 1948-47-6, Iron cyanide (fe(cn)2)  
 3047-59-4, Ferrous formate 3094-87-9, Ferrous acetate  
 4367-08-2, Copper cyanide (Cu(CN)2) 7616-83-3, Mercury  
 perchlorate (hg(clo4)2) 7757-87-1 7757-95-1, Nickel sulfite  
 (niso3) 7798-23-4, Copper phosphate (cu3(po4)2) 10045-94-0  
 10102-50-8 10214-40-1, Copper selenite (cuseo3) 10381-36-9, Nickel  
 phosphate (ni3(po4)2) 13446-03-2, Manganese dibromide 13446-44-1,  
 manganese pyrophosphate (mn2p2o7) 13455-31-7, Cobalt perchlorate  
 (co(clo4)2) 13455-36-2, Cobalt phosphate (co3(po4)2) 13464-44-3  
 13477-17-3, Cadmium phosphate (cd3(po4)2) 13568-71-3, Manganese  
 sulfite (mnso3) 13597-44-9 13637-71-3, Nickel perchlorate  
 (ni(clo4)2) 13767-71-0, Cupric iodide 13770-18-8, Cupric  
 perchlorate 13812-58-3, Copper tellurite (cuteo3) 13825-86-0,  
 Chromium sulfate (crso4) 13870-15-0, Mercury selenate (hgseo4)  
 13933-23-8, Ferrous perchlorate 14013-02-6, Copper sulfite (cuso3)  
 14013-86-6, Iron nitrate (fe(no3)2) 14448-18-1, Nickel pyrophosphate  
 (ni2p2o7) 14590-19-3, Cobalt selenate (coseo4) 14640-56-3, Cobalt  
 pyrophosphate (co2p2o7) 14676-93-8, Chromium oxalate 14693-75-5  
 14940-41-1, Iron phosphate (fe3(po4)2) 15060-62-5, Nickel selenate  
 (niseo4) 15191-80-7, Copper pyrophosphate (cu2p2o7) 15600-62-1,  
 Cadmium pyrophosphate (cd2p2o7) 15600-69-8, Iron selenite (feseo3)  
 15851-45-3 15851-50-0 15851-51-1, Cobalt tellurite (coteo3)  
 15851-52-2, Nickel tellurite (niteo3) 15857-43-9, Iron selenate  
 (feseo4) 17135-66-9, Chromium nitrate (cr(no3)2) 18734-50-4,  
 Chromium carbonate (crco3) 21480-65-9 22400-99-3, Manganese  
 cyanide (mn(cn)2) 25160-35-4 27115-36-2, Chromium  
 formate 32702-66-2 50820-24-1, Iron sulfite (feso3) 50968-00-8,  
 Mercury carbonate 57449-29-3, Chromium sulfite (crso3) 61136-66-1  
 61136-68-3 79346-74-0, Chromium cyanide (cr(cn)2)  
 84973-21-7 89190-52-3, Aluminum chromium oxide (Al2CrO4)  
 89190-53-4, Aluminum mercury oxide (Al2HgO4) 127771-97-5  
 127771-98-6 127771-99-7 127772-00-3 127772-01-4  
 (heat of formation of)

L19 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1990:83178 HCAPLUS Full-text

DOCUMENT NUMBER: 112:83178

ORIGINAL REFERENCE NO.: 112:14095a,14098a

TITLE: Reportable quantity adjustments; delisting of  
ammonium thiosulfate

CORPORATE SOURCE: United States Environmental Protection Agency,  
Washington, DC, 20460, USA

SOURCE: Federal Register (1989), 54(155), 33426-84, 14 Aug  
1989

CODEN: FEREAC; ISSN: 0097-6326

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 03 Mar 1990

AB Under the Federal Comprehensive Environmental Response, Compensation, and  
Liability Act, the EPA is promulgating final reportable quantities (RQ) for  
258 hazardous substances and hazardous waste streams. NH4 thiosulfate is  
removed from the list of hazardous substances since the median lethal  
concentration is well above 500 mg/L for aquatic toxicity. Also included in  
this final rule is replacement of the registered trademark Gelthane with the  
generic name difocal, as several companies manufacture this substance.

IT 544-18-3, Cobaltous formate 544-92-3, Copper

cyanide 557-41-5, Zinc formate  
(environmental pollution from release of, reportable quantity for,  
in USA)

RN 544-18-3 HCAPLUS

CN Formic acid, cobalt(2+) salt (2:1) (CA INDEX NAME)



RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



RN 557-41-5 HCAPLUS

CN Formic acid, zinc salt (2:1) (CA INDEX NAME)



CC 59-2 (Air Pollution and Industrial Hygiene)

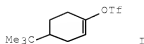
Section cross-reference(s): 60, 61

IT 111-54-6, Ethylenedisithiocarbamic acid 111-54-6D, esters and salts  
111-91-1, Bis(2-chloroethoxy)methane 115-02-6, Azaserine 115-29-7,  
Endosulfan 115-32-2, Dicofol 116-06-3, Aldicarb 117-80-6,  
Dichlone 117-81-7, Bis(2-ethylhexyl)phthalate 117-84-0,  
1,2-Benzenedicarboxylic acid, diethyl ester 118-74-1, Benzene,  
hexachloro- 119-90-4, [1,1'-Biphenyl]-4,4'-diamine,3,3'-dimethoxy-  
119-93-7 120-12-7, Anthracene, biological studies 120-58-1,  
1,3-Benzodioxole, 5-(1-propenyl)- 120-82-1, 1,2,4-Trichlorobenzene  
120-83-2, 2,4-Dichlorophenol 121-44-8, biological studies  
121-75-5, Malathion 122-09-8, Benzeneethanamine,  
 $\alpha$ , $\alpha$ -dimethyl- 122-66-7, Hydrazine, 1,2-diphenyl-  
123-33-1, Maleic hydrazide 123-62-6, Propionic anhydride 123-63-7,  
Paraldehyde 123-86-4, Butyl acetate 123-91-1,  
1,4-Diethylenedioxiide, biological studies 123-92-2, Iso-Amyl acetate  
124-04-9, Hexanedioic acid, biological studies 124-40-3,  
Dimethylamine, biological studies 124-41-4, Sodium methylate  
124-48-1, Chlorodibromomethane 126-98-7, Methacrylonitrile  
127-18-4, Ethene, tetrachloro-, biological studies 127-82-2  
129-00-0, Pyrene, biological studies 130-15-4, 1,4-Naphthalenedione  
131-11-3, 1,2-Benzenedicarboxylic acid, dimethyl ester 131-74-8,  
Ammonium picrate 131-89-5, 2-Cyclohexyl-4,6-dinitrophenol

133-06-2, Captan 134-32-7, 1-Naphthalenamine 137-26-8 140-88-5  
 141-78-6, Acetic acid, ethyl ester, biological studies 142-28-9,  
 1,3-Dichloropropane 142-71-2, Cupric acetate 142-84-7,  
 Dipropylamine 143-33-9, Sodium cyanide 143-50-0, Kepone  
 145-73-3, Endothall 148-82-3, Melphalan 151-50-8, Potassium  
 cyanide 151-56-4, Aziridine, biological studies 152-16-9,  
 Diphosphoramidate, octamethyl- 189-55-9, Benzo[*rst*]pentaphene  
 191-24-2, Benzo[*ghi*]perylene 193-39-5, Indeno(1,2,3-*cd*)pyrene  
 205-99-2, Benzo[*b*]fluoranthene 206-44-0, Fluoranthene 207-08-9,  
 Benzo[*k*]fluoranthene 208-96-8, Acenaphthylene 218-01-9,  
 1,2-Benzophenanthrene 225-51-4, Benz[*c*]acridine 297-97-2  
 298-00-0, Methyl parathion 298-02-2, Phorate 298-04-4, Disulfoton  
 300-76-5, Naled 301-04-2, Acetic acid, lead(2+) salt 305-03-3  
 309-00-2, Aldrin 311-45-5, Diethyl p-nitrophenyl phosphate  
 315-18-4, Mexacarbate 319-84-6,  $\alpha$ -BHC 319-85-7,  $\beta$ -BHC  
 319-86-8,  $\delta$ -BHC 329-71-5, 2,5-Dinitrophenol 330-54-1  
 333-41-5, Diazinon 353-50-4, Carbon oxyfluoride 357-57-3, Brucine  
 460-19-5, Cyanogen 465-73-6, Isodrin 492-80-8, Benzenamine,  
 4,4'-carbonimidoylbis (N,N-dimethyl- 494-03-1, Chlornaphazine  
 504-24-5, 4-Aminopyridine 504-60-9, 1-Methylbutadiene 506-61-6,  
 Potassium silver cyanide 506-64-9, Silver cyanide (Ag(CN))  
 506-68-3, Cyanogen bromide 506-77-4, Cyanogen chloride ((CN)Cl)  
 506-87-6, Ammonium carbonate 506-96-7, Acetyl bromide 509-14-8,  
 Methane, tetranitro- 510-15-6 528-29-0, o-Dinitrobenzene  
 534-52-1, 4,6-Dinitro-o-cresol 540-59-0, 1,2-Dichloroethylene  
 540-73-8, 1,2-Dimethylhydrazine 540-88-5, tert-Butyl acetate  
 541-09-3, Uranyl acetate 541-53-7, Thioimdidodicarbonic diamide  
 ([*(H2N)C(S)2NH*]) 541-73-1, Benzene, 1,3-dichloro- 542-62-1, Barium  
 cyanide 542-75-6, 1,3-Dichloropropene 542-76-7,  
 3-Chloropropionitrile 542-88-1 543-90-8, Cadmium acetate  
 544-18-3, Cobaltous formate 544-92-3, Copper  
 cyanide 554-84-7 557-19-7, Nickel cyanide (Ni(CN)2) 557-21-1,  
 Zinc cyanide 557-34-6, Zinc acetate 557-41-5, Zinc  
 formate 563-12-2, Ethion 563-68-8, Acetic acid, thallium(1+) salt  
 573-56-8, 2,6-Dinitrophenol 591-08-2, Acetamide,  
 N-(aminothioxomethyl)- 592-01-8, Calcium cyanide 592-04-1, Mercury  
 cyanide (Hg(CN)2) 592-85-8, Mercuric thiocyanate 592-87-0, Lead  
 thiocyanate 594-42-3, Methanesulfonyl chloride, trichloro-  
 598-31-2, Bromoacetone 606-20-2, Benzene, 2-methyl-1,3-dinitro-  
 608-93-5, Benzene, pentachloro- 610-39-9, 3,4-Dinitrotoluene  
 615-53-2, Carbamic acid, methylnitroso-, ethyl ester 621-64-7  
 624-83-9, Methane, isocyanato- 625-16-1, tert-Amyl acetate  
 628-63-7, Amyl acetate 628-86-4 630-10-4, Selenourea 630-20-6,  
 Ethane, 1,1,1,2-tetrachloro 631-61-8, Ammonium acetate 636-21-5,  
 Benzenamine, 2-methyl-, hydrochloride 640-19-7, Acetamide, 2-fluoro-  
 684-93-5, N-Nitroso-N-methylurea 692-42-2, Arsine, diethyl-  
 696-28-6, Arsonous dichloride, phenyl- 759-73-9,  
 N-Nitroso-N-ethylurea 764-41-0, 2-Butene, 1,4-dichloro- 765-34-4,  
 Oxiranecarboxaldehyde 814-91-5 815-82-7, Cupric tartrate  
 924-16-3, 1-Butanamine, N-butyl-N-nitroso 930-55-2,  
 N-Nitrosopyrrolidine 959-98-8,  $\alpha$ -Endosulfan 1024-57-3,  
 Heptachlor epoxide 1031-07-8, Endosulfan sulfate 1066-30-4,  
 Chromic acetate 1066-33-7, Ammonium bicarbonate 1072-35-1, Lead  
 stearate 1111-78-0, Ammonium carbamate 1113-38-8, Ammonium oxalate  
 1116-54-7, Ethanol, 2,2'-(nitrosoimino)bis- 1120-71-4,  
 1,2-Oxathiolane, 2,2-dioxide 1185-57-5, Ferric ammonium citrate  
 1194-65-6, Dichlobenil 1300-71-6, Xylenol 1303-28-2, Arsenic  
 pentoxide 1303-33-9, Arsenic trisulfide 1309-64-4, Antimony  
 trioxide, biological studies 1310-58-3, Potassium hydroxide,

biological studies 1310-73-2, Sodium hydroxide, biological studies  
 1314-32-5, Thallic oxide 1314-62-1, Vanadium pentoxide, biological  
 studies 1314-80-3, Phosphorus pentasulfide 1314-84-7, Zinc  
 phosphide 1314-87-0, Lead sulfide 1319-77-3 1321-12-6,  
 Nitrotoluene 1327-53-3, Arsenic oxide (As2O3) 1330-20-7, Benzene,  
 dimethyl, biological studies 1332-07-6, Zinc borate 1333-83-1,  
 Sodium bifluoride 1335-32-6, Lead, bis(acetato-O)tetrahydroxytri  
 1336-21-6, Ammonium hydroxide 1338-23-4, 2-Butanone peroxide  
 1341-49-7, Ammonium bifluoride 1464-53-5, 2,2'-Bioxirane  
 1563-66-2, Carbofuran 1746-01-6 1762-95-4, Ammonium thiocyanate  
 1863-63-4, Ammonium benzoate 1888-71-7, Hexachloropropene  
 1918-00-9 2032-65-7, Mercaptodimethur 2303-16-4, Carbamothioic  
 acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester  
 2312-35-8, Propargite 2465-27-2, Auramine 2763-96-4,  
 5-(Aminomethyl)-3-isoxazolol 2921-88-2, Chlorpyrifos 2944-67-4  
 3012-65-5 3164-29-2, Ammonium tartrate 3165-93-3, Benzenamine,  
 4-chloro-2-methyl-, hydrochloride 3251-23-8, Cupric nitrate  
 3288-58-2, O,O-Diethyl-S-methyl dithiophosphate 3486-35-9, Zinc  
 carbonate 3689-24-5 4170-30-3, 2-Butenal 4463-43-8 4549-40-0  
 5344-82-1, 1-(o-Chlorophenyl)thiourea 6533-73-9, Carbonic acid,  
 dithallium(1+) salt 7005-72-3, 4-Chlorophenyl phenyl ether  
 7421-93-4, Endrin aldehyde 7439-92-1, Lead, biological studies  
 7439-97-6, Mercury, biological studies 7439-97-6D, Mercury, compds.  
 7440-02-0, Nickel, biological studies 7440-22-4, Silver, biological  
 studies 7440-23-5, Sodium, biological studies 7440-28-0, Thallium,  
 biological studies 7440-36-0, Antimony, biological studies  
 7440-36-0D, Antimony, compds. 7440-38-2, Arsenic, biological studies  
 7440-38-2D, Arsenic, compds. 7440-41-7, Beryllium, biological  
 studies 7440-41-7D, Beryllium, compds. 7440-43-9, Cadmium,  
 biological studies 7440-43-9D, Cadmium, compds. 7440-47-3,  
 Chromium, biological studies 7440-47-3D, Chromium, compds.  
 7440-50-8, Copper, biological studies 7440-50-8D, Copper, compds.  
 7440-66-6, Zinc, biological studies 7446-08-4, Selenium dioxide  
 7446-14-2, Lead sulfate 7446-18-6, Sulfuric acid, dithallium(1+)  
 salt 7446-27-7, Lead phosphate 7447-39-4, Cupric chloride,  
 biological studies 7488-56-4, Selenium sulfide 7558-79-4, Sodium  
 phosphate, dibasic 7601-54-9, Sodium phosphate, tribasic  
 7631-89-2, Sodium arsenate 7631-90-5, Sodium bisulfite  
 (environmental pollution from release of, reportable quantity for,  
 in USA)

L19 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 1986:479075 HCAPLUS Full-text  
 DOCUMENT NUMBER: 105:79075  
 ORIGINAL REFERENCE NO.: 105:12837a,12840a  
 TITLE: Palladium-catalyzed coupling of vinyl triflates  
 with organostannanes. Synthetic and mechanistic  
 studies  
 AUTHOR(S): Scott, William J.; Stille, J. K.  
 CORPORATE SOURCE: Dep. Chem., Colorado State Univ., Fort Collins,  
 CO, 80523, USA  
 SOURCE: Journal of the American Chemical Society (1986),  
 108(11), 3033-40  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 105:79075  
 ED Entered STN: 06 Sep 1986  
 GI



AB The palladium-catalyzed coupling reaction of vinyl triflates, e.g., (I), with acetylenic, vinyl, allyl, and alkyl tin reagents in the presence of LiCl or another suitable salt takes place in high yields under mild reaction conditions; however, benzyl and Ph tin reagents give poor yield of coupled product. The utilization of a tin or silicon hydride reagent in place of the organotin partner yields the alkene by reductive cleavage of the triflate group. The palladium-catalyzed reaction of vinyl triflates with Me<sub>3</sub>SnSnMe<sub>3</sub> gives vinyl stannanes in high yields. Regioselectively formed vinyl triflates can be used to produce 1,3-dienes as the regioisomeric coupled products.

IT 141-53-7  
(palladium catalyzed reduction of tert-butylcyclohexenyl triflate by)  
RN 141-53-7 HCAPLUS  
CN Formic acid, sodium salt (1:1) (CA INDEX NAME)



IT 33589-44-5  
(reaction of, with lithiated bis(tributylstannyl)ethylene)  
RN 33589-44-5 HCAPLUS  
CN Copper, 1-hexyn-1-yl- (CA INDEX NAME)



CC 29-8 (Organometallic and Organometalloidal Compounds)  
Section cross-reference(s): 24  
IT 64-18-6, reactions 102-82-9 141-53-7 302-01-2,  
reactions 617-86-7 628-41-1 688-73-3 7580-67-8 7693-26-7  
9004-73-3 16853-85-3 16940-66-2 63717-73-7  
(palladium catalyzed reduction of tert-butylcyclohexenyl triflate by)  
IT 33589-44-5  
(reaction of, with lithiated bis(tributylstannyl)ethylene)  
OS.CITING REF COUNT: 237 THERE ARE 237 CAPLUS RECORDS THAT CITE THIS  
RECORD (239 CITINGS)

L19 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1983:471129 HCAPLUS [Full-text](#)  
DOCUMENT NUMBER: 99:71129  
ORIGINAL REFERENCE NO.: 99:11059a,11062a  
TITLE: Sugar ketals

INVENTOR(S): Matsumura, Koichi; Aono, Tetsuya  
 PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 27 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 76118	A1	19830406	EP 1982-305053	19820924
EP 76118	B1	19850904		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
JP 58055494	A	19830401	JP 1981-155071	19810929
JP 58167583	A	19831003	JP 1982-50575	19820329
US 4460767	A	19840717	US 1982-418266	19820915
CA 1191844	A1	19850813	CA 1982-412291	19820927
DK 8204303	A	19830330	DK 1982-4303	19820928
PRIORITY APPLN. INFO.:			JP 1981-155071	A 19810929
			JP 1982-50575	A 19820329

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 99:71129

ED Entered STN: 12 May 1984

AB Sugar ketals were prepared by treating a sugar with a ketone in the presence of Cu or its oxide, hydroxide, or salt and HCl or HBr, or in the presence of CuCl<sub>2</sub> or CuBr<sub>2</sub>. Thus, a mixture of 200 mL Me<sub>2</sub>CO, 10.0 g D-xylose, 138 mg CuF<sub>2</sub>·2H<sub>2</sub>O, and 1 mL of a 2 mol/L solution of HCl in dioxane was refluxed for 7 h to give 83.7% 1,2:3,5-di-O-isopropylidene- $\alpha$ -D-xylofuranose of purity  $\geq$ 97%.

IT 544-19-4 544-92-3  
 (catalysts, for ketalization of sugars)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)



IC C07H009-04; C07H015-20; C07H015-04; C07D307-20

CC 33-1 (Carbohydrates)

IT 544-19-4 544-92-3 1317-38-0, uses and  
 miscellaneous 1317-39-1, uses and miscellaneous 7440-50-8, uses  
 and miscellaneous 7447-39-4, uses and miscellaneous 7758-98-7,

uses and miscellaneous 7787-70-4 7789-19-7 7789-45-9  
19372-21-5 20427-59-2

(catalysts, for ketalization of sugars)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS  
RECORD (2 CITINGS)

L19 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1976:555414 HCAPLUS Full-text

DOCUMENT NUMBER: 85:155414

ORIGINAL REFERENCE NO.: 85:24867a,24870a

TITLE: Copper(I) and copper(II) in complexes of  
biochemical significance studied by x-ray  
photoelectron spectroscopy

AUTHOR(S): Rupp, Heinz; Weser, Ulrich  
CORPORATE SOURCE: Physiol.-Chem. Inst., Univ. Tuebingen, Tuebingen,  
Fed. Rep. Ger.

SOURCE: Biochimica et Biophysica Acta, Protein Structure  
(1976), 446(1), 151-65

CODEN: BBPTBH; ISSN: 0005-2795

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 May 1984

AB X-ray photoelectron spectroscopic measurements of Cu complexes of biochem.  
significance were carried out to determine whether or not Cu is present in the  
Cu(I) or Cu(II) state. Only 1 single homogeneous signal in the x-ray  
photoelectron spectra of the Cu(I) 2p<sub>1/2</sub> and 2p<sub>3/2</sub> levels was seen, regardless  
of what Cu(I) complex was used. By contrast, 1 more or less split satellite  
in addition to the main 2p Cu signal appeared when Cu(II) complexes were  
studied. The extent of satellite splitting was dependent on the nature of the  
ligands coordinated with Cu(II). Thus, a strong splitting was observed in the  
spectra of Cu-(trifluoroacetylacetonate)<sub>2</sub> and Cu-(biuret)<sub>2</sub>C12 where Cu(II) is  
exclusively bound to O having a formal double bond. No such splitting was  
seen in Cu(II) chelates where the metal was bound to single bonded O and(or)  
N. In the antiferromagnetically coupled Cu(II) complexes, Cu<sub>2</sub>-(succinate)<sub>2</sub>-  
4H<sub>2</sub>O, Cu-(HCOO)<sub>2</sub>, CuO, and in the completely diamagnetic Cu<sub>2</sub>-(1,3-  
diphenyltriazene)<sub>4</sub> complex, Cu(II) was detected. The reaction of Cu(I) and  
Cu(II) with the SH of either cysteine, penicillamine, or α-  
mercaptopyrionylglycine yielded Cu(I) complexes. During the x-ray exposure  
of the different samples, photoredn. of Cu(II) was not observed

IT 544-19-4 544-92-3  
(photoelectron spectra of, electron binding energies and satellite  
splittings of)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)

$\text{C}=\text{CH}-\text{OH}$

● 1/2 Cu(II)

RN 544-92-3 HCAPLUS

CN Copper cyanide (Cu(CN)) (CA INDEX NAME)

Cu—C≡N

CC 6-13 (General Biochemistry)  
 IT 52-67-5 52-67-5D, D-Valine, 3-mercapto-, copper complexes 52-90-4,  
 properties 52-90-4D, L-Cysteine, copper complexes 56-40-6,  
 properties 56-41-7, properties 56-89-3, properties 56-89-3D,  
 L-Cystine, copper complexes 147-14-8 544-19-4  
 544-92-3 1317-38-0, properties 1953-02-2 6000-44-8  
 7268-91-9 12544-82-0 14324-82-4 15558-63-1 16480-55-0  
 20902-45-8 22229-10-3 53183-06-5 57300-92-2 60924-19-8  
 (photoelectron spectra of, electron binding energies and satellite  
 splittings of)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
 RECORD (1 CITINGS)

L19 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1974:3634 HCAPLUS Full-text  
 DOCUMENT NUMBER: 80:3634  
 ORIGINAL REFERENCE NO.: 80:638h,639a  
 TITLE: Copper ketenides  
 INVENTOR(S): Bryce-Smith, Derek; Blues, Ernest T.  
 SOURCE: Brit., 5 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1329252	A	19730905	GB 1970-1663	19700113
US 3776931	A	19731204	US 1971-105960	19710112
PRIORITY APPLN. INFO.:			GB 1970-1663	A 19700113

ED Entered STN: 12 May 1984

AB Hydrates and amine and Cu salt complexes of Cu ketenide Cu<sub>2</sub>C<sub>2</sub>O, useful as catalysts for the air oxidation of CH<sub>2</sub>:CH<sub>2</sub> and MeCH:CH<sub>2</sub>, were prepared by treating CH<sub>2</sub>:CO with cuprous compds. or by generating cuprous ions at a Cu anode in an electrolyte containing CH<sub>2</sub>:CO. Thus, addition of 60 ml Ac<sub>2</sub>O followed by 30 ml Et<sub>3</sub>N to 4 g CuCl in 100 ml MeCN at 20° precipitated Cu<sub>2</sub>C<sub>2</sub>O.H<sub>2</sub>O. Passing a 1:7 MeCH:CH<sub>2</sub>-air mixture through 0.1 g Cu<sub>2</sub>C<sub>2</sub>O.H<sub>2</sub>O suspended on glass wool at 200° converted 1% MeCH:CH<sub>2</sub> to a 1:20 mixture of propylene oxide and Me<sub>2</sub>CO. Heating the catalyst to 260° increased the rate of oxidation for a brief time. Mixed Cu-Ag ketenide oxidation catalysts were prepared

IT 50869-69-7 50869-69-7D, Copper,  
 [μ-(oxoethenylidene)]di-, reaction product with cuprous chloride  
 (catalysts, for air oxidation of ethylene and propylene)  
 RN 50869-69-7 HCAPLUS  
 CN Copper, [μ-(oxoethenylidene)]di- (9CI) (CA INDEX NAME)





RN 50869-69-7 HCAPLUS  
 CN Copper, [ $\mu$ -(oxoethenylidene)]di- (9CI) (CA INDEX NAME)



IT 624-88-4  
 (reaction with ketene)  
 RN 624-88-4 HCAPLUS  
 CN Formic acid, copper(1+) salt (8CI, 9CI) (CA INDEX NAME)



IC C07FCD  
 CC 29-9 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 23  
 IT 463-51-4D, Ethenone, copper complex, reaction product with cuprous chloride 463-51-4D, Ethenone, copper complex, reaction product with silver nitrate 50869-69-7 50869-69-7D, Copper, [ $\mu$ -(oxoethenylidene)]di-, reaction product with cuprous chloride 50869-69-7D, Copper, [ $\mu$ -(oxoethenylidene)]di-, reaction product with silver nitrate (catalysts, for air oxidation of ethylene and propylene)  
 IT 624-88-4 13395-16-9 25535-55-1 70710-82-6 (reaction with ketene)

L19 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1963:445341 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 59:45341  
 ORIGINAL REFERENCE NO.: 59:8190e-g  
 TITLE: Computer estimation of heat and free energy of formation for simple inorganic compounds  
 AUTHOR(S): Wilcox, D. E.; Bromley, L. A.  
 CORPORATE SOURCE: Univ. of California, Berkeley  
 SOURCE: Journal of Industrial and Engineering Chemistry (Washington, D. C.) (1963), 55(7), 32-9  
 CODEN: JIECAD; ISSN: 0095-9014  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 ED Entered STN: 22 Apr 2001  
 AB Heats and free energies of formation of inorg. compds. are correlated by equations of the form,  $-\Delta H_f = nAB(XB - XA)^2 + nAYA + nBYB + nAB(WA/WB)$ , where subscripts A and B refer to the cation and the anion, resp., nAB is the apparent number of single bonds, nA and nB are the nos. of atoms of A and B in the mol., and X, Y, and W are parameters determined from exptl. data. The equation for  $-\Delta A_f$  is identical in form. The average deviation of calculated

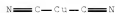
from exptl. values of  $-\Delta H_f$  for 611 compds. was 1.51-1.98 and of  $-\Delta F_f$  for 270 compds., 1.57 kcal./mol. Estimated values of  $-\Delta H_f$  for 475 compds., with an estimated uncertainty of 15 kcal./mol, are tabulated.

IT 4367-08-2 13381-39-0 29310-24-5  
36952-70-2

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 4367-08-2 HCAPLUS

CN Copper cyanide (Cu(CN)<sub>2</sub>) (9CI) (CA INDEX NAME)



RN 13381-39-0 HCAPLUS

CN Formic acid, titanium(4+) salt (8CI, 9CI) (CA INDEX NAME)



RN 29310-24-5 HCAPLUS

CN Formic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



RN 36952-70-2 HCAPLUS

CN Formic acid, iron salt (9CI) (CA INDEX NAME)



IT 91864-07-2F, Radium formate

(free energy and heat of formation of, calcn. of)

RN 91864-07-2 HCAPLUS

CN Formic acid, radium salt (9CI) (CA INDEX NAME)

C=CH-OH

● 1/2 Ra

IT 540-69-2P, Ammonium formate 544-18-3P, Cobalt formate, Co(O2CH)2 556-63-8P, Lithium formate 557-39-1P, Magnesium formate 811-54-1P, Lead formate 992-98-3P, Thallium formate 1111-71-3P, Beryllium formate 2879-85-8P, Tin formate, Sn(O2CH)2 3047-59-4P, Iron formate, Fe(O2CH)2 3349-06-2P, Nickel formate, Ni(O2CH)2 3495-35-0P, Rubidium formate 3495-36-1P, Cesium formate 4464-23-7P, Cadmium formate 84973-21-7P, Mercury formate, HgO2(CH)2 (heat of formation of, calcn. of)

RN 540-69-2 HCAPLUS

CN Formic acid, ammonium salt (1:1) (CA INDEX NAME)

C=CH-OH

● NH3

RN 544-18-3 HCAPLUS

CN Formic acid, cobalt(2+) salt (2:1) (CA INDEX NAME)

C=CH-OH

● 1/2 Co(II)

RN 556-63-8 HCAPLUS

CN Formic acid, lithium salt (1:1) (CA INDEX NAME)

C=CH-OH

● Li

RN 557-39-1 HCAPLUS

CN Formic acid, magnesium salt (2:1) (CA INDEX NAME)



RN 811-54-1 HCAPLUS  
 CN Formic acid, lead(2+) salt (2:1) (CA INDEX NAME)



RN 992-98-3 HCAPLUS  
 CN Formic acid, thallium(1+) salt (1:1) (CA INDEX NAME)



RN 1111-71-3 HCAPLUS  
 CN Formic acid, beryllium salt (8CI, 9CI) (CA INDEX NAME)



RN 2879-85-8 HCAPLUS  
 CN Formic acid, tin(2+) salt (8CI, 9CI) (CA INDEX NAME)



RN 3047-59-4 HCAPLUS  
 CN Formic acid, iron(2+) salt (8CI, 9CI) (CA INDEX NAME)



● 1/2 Fe(II)

RN 3349-06-2 HCAPLUS

CN Formic acid, nickel(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Ni(II)

RN 3495-35-0 HCAPLUS

CN Formic acid, rubidium salt (1:1) (CA INDEX NAME)



● Rb

RN 3495-36-1 HCAPLUS

CN Formic acid, cesium salt (1:1) (CA INDEX NAME)



● Cs

RN 4464-23-7 HCAPLUS

CN Formic acid, cadmium salt (8CI, 9CI) (CA INDEX NAME)



● 1/2 Cd

RN 84973-21-7 HCAPLUS

CN Formic acid, mercury(2+) salt (9CI) (CA INDEX NAME)

C=CH-OH

● 1/2 Hg(II)

CC 7 (Thermodynamics, Thermochemistry, and Thermal Properties)

IT 513-77-9 513-78-0 1303-58-8 1303-61-3 1633-05-2 2140-52-5

3017-60-5 3444-13-1 3486-35-9 4367-08-2 6533-73-9

7492-68-4 7783-21-3 10257-55-3 10290-71-8 10294-28-7

12019-06-6 12024-22-5 12039-11-1 12133-28-7 12133-40-3

12134-77-9 12135-36-3 12135-38-5 13106-47-3 13381-39-0

13451-01-9 13494-91-2 13510-49-1 13537-24-1 13597-64-3

13628-54-1 13767-07-2 13847-12-6 14460-02-7 14677-00-0

14965-99-2 18488-90-9 18807-10-8 19307-28-9 23276-62-2

25105-31-1 25253-54-7 25327-03-1 26506-47-8 29149-89-1

29310-24-5 30737-24-7 30884-45-8 31754-55-9 32702-66-2

36952-70-2 44120-46-9 44122-15-8 50968-00-8 57592-57-1

72296-38-9 73655-04-6 76584-75-3 76868-90-1 79715-66-5

89412-01-1 92226-10-3 98966-74-6 99711-87-2 99770-06-6

99996-22-2 99996-23-3 100408-81-9 100736-93-4 100736-94-5

100737-27-7 101764-28-7 101764-33-4 104813-96-9 107927-26-4

108021-78-9 108064-22-8 108064-26-2

(Derived from data in the 7th Collective Formula Index (1962-1966))

IT 497-19-8P, Sodium carbonate, Na<sub>2</sub>CO<sub>3</sub> 554-13-2P, Lithium carbonate,Li<sub>2</sub>CO<sub>3</sub> 1310-65-2P, Lithium hydroxide 1310-73-2P, Sodium hydroxide1313-59-3P, Sodium oxide 1313-82-2P, Sodium sulfide, Na<sub>2</sub>S7116-98-5P, Radium carbonate, RaCO<sub>3</sub> 7447-41-8P, Lithium chloride

7631-99-4P, Sodium nitrate 7647-15-6P, Sodium bromide 7681-49-4P,

Sodium fluoride 7757-82-6P, Sodium sulfate, Na<sub>2</sub>SO<sub>4</sub> 7789-24-4P,

Lithium fluoride 7791-03-9P, Lithium perchlorate 10025-66-8P,

Radium chloride 10031-23-9P, Radium bromide 12057-24-8P, Lithium

oxide 12136-58-2P, Lithium sulfide, Li<sub>2</sub>S 15123-87-2P, Radium

selenate 18488-87-4P, Radium nitrite 20610-49-5P, Radium fluoride

20610-52-0P, Radium iodide 23285-36-1P, Radium oxalate, RaC<sub>2</sub>O<sub>4</sub>

23320-13-0P, Radium sulfide, RaS 29084-90-0P, Radium perchlorate

72172-65-7P, Radium hydride, RaH<sub>2</sub> 91864-04-9P, Radium carbonate,Ra(HCO<sub>3</sub>)<sub>2</sub> 91864-07-2P, Radium formate 92063-64-4P,

Radium thiocyanate 92226-08-9P, Radium cyanide 92274-59-4P, Radium

acetate 98966-77-9P, Radium sulfate, Ra(HSO<sub>4</sub>)<sub>2</sub> 98966-78-0P, Radiumsulfide, Ra(HS)<sub>2</sub> 98966-82-6P, Radium chlorate 98966-86-0P, Radiumhydroxide 99383-52-5P, Radium peroxide, RaO<sub>2</sub> 99383-53-6P, Radiumsilicate, RaSiO<sub>3</sub>

(free energy and heat of formation of, calcn. of)

IT 71-48-7P, Co(OAc)<sub>2</sub> 127-09-3P, Sodium acetate 142-72-3P, Magnesiumacetate 301-04-2P, Lead acetate, Pb(OAc)<sub>2</sub> 306-61-6P, Magnesiumthiocyanate 373-02-4P, Nickel acetate, Ni(OAc)<sub>2</sub> 506-87-6P,Ammonium carbonate 516-02-9P, Barium oxalate, BaC<sub>2</sub>O<sub>4</sub>

540-69-2P, Ammonium formate 542-84-7P, Cobalt cyanide,

Co(CN)<sub>2</sub> 543-81-7P, Beryllium acetate 543-90-8P, Cadmium acetate544-18-3P, Cobalt formate, Co(O<sub>2</sub>CH)<sub>2</sub> 546-89-4P, Lithium

acetate 547-66-0P, Magnesium oxalate 547-68-2P, Zinc oxalate,

ZnC<sub>2</sub>O<sub>4</sub> 553-91-3P, Lithium oxalate, Li<sub>2</sub>C<sub>2</sub>O<sub>4</sub> 556-63-8P,

Lithium formate 556-65-0P, Lithium thiocyanate 557-19-7P, Nickel

cyanide, Ni(CN)<sub>2</sub> 557-21-1P, Zinc cyanide 557-39-1P,  
 Magnesium formate 557-42-6P, Zinc thiocyanate 563-67-7P, Rubidium  
 acetate 563-68-8P, Thallium acetate, TlOAc 563-71-3P, Iron  
 carbonate, FeCO<sub>3</sub> 563-72-4P, Calcium oxalate 584-09-8P, Rubidium  
 carbonate, Rb<sub>2</sub>CO<sub>3</sub> 592-05-2P, Lead cyanide, Pb(CN)<sub>2</sub> 598-62-9P,  
 Manganese carbonate, MnCO<sub>3</sub> 631-61-8P, Ammonium acetate 638-39-1P,  
 Tin acetate, Sn(OAc)<sub>2</sub> 640-67-5P, Manganese oxalate, MnC<sub>2</sub>O<sub>4</sub>  
 811-54-1P, Lead formate 814-91-5P, Copper oxalate, CuC<sub>2</sub>O<sub>4</sub>  
 814-93-7P, Lead oxalate, PbC<sub>2</sub>O<sub>4</sub> 814-94-8P, Tin oxalate, SnC<sub>2</sub>O<sub>4</sub>  
 814-95-9P, Strontium oxalate, SrC<sub>2</sub>O<sub>4</sub> 992-98-3P, Thallium  
 formate 1066-33-7P, Ammonium carbonate, NH<sub>4</sub>HCO<sub>3</sub> 1068-63-9P, Cesium  
 oxalate, Cs<sub>2</sub>C<sub>2</sub>O<sub>4</sub> 1111-71-3P, Beryllium formate  
 1113-38-8P, Ammonium oxalate, (NH<sub>4</sub>)<sub>2</sub>C<sub>2</sub>O<sub>4</sub> 1302-81-4P, Aluminum  
 sulfide, Al<sub>2</sub>S<sub>3</sub> 1303-52-2P, Gold hydroxide, Au(OH)<sub>3</sub> 1304-76-3P,  
 Bi<sub>2</sub>O<sub>3</sub> 1308-14-1P, Chromium hydroxide, Cr(OH)<sub>3</sub> 1309-60-0P, Lead  
 oxide, PbO<sub>2</sub> 1310-61-8P, Potassium sulfide, KHS 1312-43-2P, Indium  
 oxide, In<sub>2</sub>O<sub>3</sub> 1314-22-3P, Zinc peroxide, ZnO<sub>2</sub> 1314-23-4P, Zirconium  
 oxide, ZrO<sub>2</sub> 1314-32-5P, Thallium oxide, Tl<sub>2</sub>O<sub>3</sub> 1315-03-3P, Vanadium  
 sulfide, V<sub>2</sub>S<sub>3</sub> 1336-21-6P, Ammonium hydroxide 1344-09-8P, Sodium  
 silicate 1344-28-1P, Aluminum oxide 1345-07-9P, Bismuth sulfide,  
 Bi<sub>2</sub>S<sub>3</sub> 1345-13-7P, Cerium oxide, Ce<sub>2</sub>O<sub>3</sub> 1762-95-4P, Ammonium  
 thiocyanate 1834-30-6P, Iron acetate, Fe(OAc)<sub>3</sub> 1948-47-6P, Iron  
 cyanide, Fe(CN)<sub>2</sub> 2013-23-2P, Mercury sulfate, Hg(HSO<sub>4</sub>)<sub>2</sub>  
 2035-66-7P, Palladium cyanide, Pd(CN)<sub>2</sub> 2090-64-4P, Magnesium  
 carbonate, Mg(HCO<sub>3</sub>)<sub>2</sub> 2092-16-2P, Calcium thiocyanate 2092-17-3P,  
 Barium thiocyanate 2408-36-8P, Lithium cyanide 2879-85-8P,  
 Tin formate, Sn(O<sub>2</sub>CH)<sub>2</sub> 2949-11-3P, Mercury oxalate, HgC<sub>2</sub>O<sub>4</sub>  
 3047-59-4P, Iron formate, Fe(O<sub>2</sub>CH)<sub>2</sub> 3173-18-0P, Beryllium  
 oxalate, (BeC<sub>2</sub>O<sub>4</sub>) 3349-06-2P, Nickel formate, Ni(O<sub>2</sub>CH)<sub>2</sub>  
 3375-31-3P, Palladium acetate, Pd(OAc)<sub>2</sub> 3396-11-0P, Cesium acetate  
 3495-35-0P, Rubidium formate 3495-36-1P, Cesium  
 formate 3535-84-0P, Thallium thiocyanate, TlSCN 3602-20-8P, Tin  
 thiocyanate, Sn(SCN)<sub>2</sub> 3879-01-4P, Cesium thiocyanate 3983-19-5P,  
 Calcium bicarbonate 4100-56-5P, Magnesium cyanide  
 4464-23-7P, Cadmium formate 6010-09-9P, Iron thiocyanate,  
 Fe(SCN)<sub>2</sub> 6013-77-0P, Iron carbonate, Fe(HCO<sub>3</sub>)<sub>2</sub> 6484-52-2P,  
 Ammonium nitrate 7446-10-8P, Lead sulfite, PbSO<sub>3</sub> 7446-17-5P,  
 Rubidium selenate, Rb<sub>2</sub>SeO<sub>4</sub> 7446-21-1P, Strontium selenate, SrSeO<sub>4</sub>  
 7446-70-0P, Aluminum chloride 7447-39-4P, Copper chloride, CuCl<sub>2</sub>  
 7488-54-2P, Rubidium sulfate, Rb<sub>2</sub>SO<sub>4</sub> 7488-55-3P, Tin sulfate, SnSO<sub>4</sub>  
 7550-35-8P, Lithium bromide 7580-67-8P, Lithium hydride  
 7616-83-3P, Mercury perchlorate, Hg(ClO<sub>4</sub>)<sub>2</sub> 7647-14-5P, Sodium  
 chloride 7647-17-8P, Cesium chloride 7681-11-0P, Potassium iodide  
 7681-82-5P, Sodium iodide 7693-27-8P, Magnesium hydride, MgH<sub>2</sub>  
 7727-15-3P, Aluminum bromide 7757-79-1P, Potassium nitrate  
 7758-02-3P, Potassium bromide 7759-01-5P, Lead tungstate(VI), PbWO<sub>4</sub>  
 7775-11-3P, Sodium chromate(VI), Na<sub>2</sub>CrO<sub>4</sub> 7778-18-9P, Calcium sulfate  
 7778-74-7P, Potassium perchlorate 7778-80-5P, Potassium sulfate,  
 K<sub>2</sub>SO<sub>4</sub> 7779-88-6P, Zinc nitrate 7782-89-0P, Lithium amide  
 7782-92-5P, Sodium amide 7783-20-2P, Ammonium sulfate 7783-46-2P,  
 Lead fluoride, PbF<sub>2</sub> 7783-51-9P, Gallium fluoride 7783-52-0P,  
 Indium fluoride, InF<sub>3</sub> 7783-64-4P, Zirconium fluoride, ZrF<sub>4</sub>  
 7784-01-2P, Silver chromate(VI), Ag<sub>2</sub>CrO<sub>4</sub> 7784-18-1P, Aluminum  
 fluoride 7784-23-8P, Aluminum iodide 7787-41-9P, Barium selenate,  
 BaSeO<sub>4</sub> 7787-52-2P, Beryllium hydride, BeH<sub>2</sub> 7787-58-8P, Bismuth  
 bromide, BiBr<sub>3</sub> 7787-60-2P, Bismuth chloride, BiCl<sub>3</sub> 7787-61-3P,  
 Bismuth fluoride, BiF<sub>3</sub> 7787-64-6P, Bismuth iodide, BiI<sub>3</sub>  
 7787-68-0P, Bismuth sulfate, Bi<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> 7787-69-1P, Cesium bromide  
 7789-17-5P, Cesium iodide 7789-23-3P, Potassium fluoride, KF  
 7789-39-1P, Rubidium bromide 7789-40-4P, Thallium bromide, TlBr

7789-41-5P, Calcium bromide 7789-68-6P, Titanium bromide, TiBr<sub>4</sub>  
 7790-29-6P, Rubidium iodide 7790-46-7P, Platinum iodide, PtI<sub>4</sub>  
 7790-59-2P, Potassium selenate, K<sub>2</sub>SeO<sub>4</sub> 7790-60-5P, Potassium  
 tungstate(VI), K<sub>2</sub>WO<sub>4</sub> 7790-69-4P, Lithium nitrate 7790-79-6P,  
 Cadmium fluoride 7790-83-2P, Cadmium nitrite 7791-10-8P, Strontium  
 chlorate 7791-11-9P, Rubidium chloride 7803-54-5P, Magnesium amide  
 7803-63-6P, Monoammonium sulfate 10006-28-7P, Potassium silicate,  
 K<sub>2</sub>SiO<sub>3</sub> 10010-65-8P, Rubidium oxalate, Rb<sub>2</sub>C<sub>2</sub>O<sub>4</sub> 10025-82-8P, Indium  
 chloride, InCl<sub>3</sub> 10028-22-5P, Iron sulfide, Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> 10045-94-0P,  
 Mercury nitrate, Hg(NO<sub>3</sub>)<sub>2</sub> 10048-98-3P, Barium phosphate, BaHPO<sub>4</sub>  
 10099-58-8P, Lanthanum chloride, LaCl<sub>3</sub> 10099-74-8P, Lead nitrate  
 10099-76-0P, Lead silicate, PbSiO<sub>3</sub> 10101-39-0P, Calcium silicate,  
 CaSiO<sub>3</sub> 10101-53-8P, Chromium sulfate, Cr<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> 10101-63-0P, Lead  
 iodide, PbI<sub>2</sub> 10102-05-3P, Palladium nitrate, Pd(NO<sub>3</sub>)<sub>2</sub> 10102-24-6P,  
 Lithium silicate, Li<sub>2</sub>SiO<sub>3</sub> 10102-45-1P, Thallium nitrate, TlNO<sub>3</sub>  
 10117-38-1P, Potassium sulfite, K<sub>2</sub>SO<sub>3</sub> 10124-43-3P, Cobalt sulfate,  
 CoSO<sub>4</sub> 10137-74-3P, Calcium chlorate 10190-55-3P, Lead  
 molybdate(VI), PbMoO<sub>4</sub> 10192-29-7P, Ammonium chlorate 10294-44-7P,  
 Mercury chlorate, HgClO<sub>3</sub> 10294-47-0P, Lead chlorate, Pb(ClO<sub>3</sub>)<sub>2</sub>  
 10294-60-7P, Ammonium selenate, NH<sub>4</sub>HSeO<sub>4</sub> 10326-21-3P, Magnesium  
 chlorate 10326-29-1P, Cesium selenate, Cs<sub>2</sub>SeO<sub>4</sub> 10343-61-0P,  
 Titanium sulfate, Ti<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> 10361-43-0P, Bismuth hydroxide, Bi(OH)<sub>3</sub>  
 10377-51-2P, Lithium iodide 10377-66-9P, Manganese nitrate, Mn(NO<sub>3</sub>)<sub>2</sub>  
 10381-37-0P, Thorium sulfate, Th(SO<sub>4</sub>)<sub>2</sub> 10415-75-5P, Mercury nitrate,  
 HgNO<sub>3</sub> 10466-65-6P, Potassium perhenate, KReO<sub>4</sub> 11074-90-1P,  
 Thallium peroxide, Tl<sub>2</sub>O<sub>2</sub> 11118-27-7P, Gold chloride 12014-56-1P,  
 Cerium hydroxide, Ce(OH)<sub>4</sub> 12018-22-3P, Chromium sulfide, Cr<sub>2</sub>S<sub>3</sub>  
 12023-99-3P, Gallium hydroxide 12026-77-6P, Titanium hydroxide,  
 Ti(OH)<sub>3</sub> 12027-06-4P, Ammonium iodide 12030-24-9P, Indium sulfide,  
 In<sub>2</sub>S<sub>3</sub> 12031-80-0P, Lithium peroxide, Li<sub>2</sub>O<sub>2</sub> 12033-33-9P, Molybdenum  
 sulfide, Mo<sub>2</sub>S<sub>3</sub> 12035-79-9P, Neptunium oxide, NpO<sub>2</sub> 12036-34-9P,  
 Plutonium oxide, Pu<sub>2</sub>O<sub>3</sub> 12038-13-0P, Praseodymium sulfide, Pr<sub>2</sub>S<sub>3</sub>  
 12038-21-0P, Platinum sulfide, PtS<sub>2</sub> 12038-56-1P, Plutonium sulfide,  
 Pu<sub>2</sub>S<sub>3</sub> 12039-07-5P, Titanium sulfide, TiS 12039-14-4P, Uranium  
 sulfide, U<sub>2</sub>S<sub>3</sub> 12039-15-5P, Zirconium sulfide, ZrS<sub>2</sub> 12039-16-6P,  
 Titanium sulfide, Ti<sub>2</sub>S<sub>3</sub> 12039-17-7P, Thallium sulfide, Tl<sub>2</sub>S<sub>3</sub>  
 12039-19-9P, Yttrium sulfide, Y<sub>2</sub>S<sub>3</sub> 12060-12-7P, Uranium oxide, U<sub>2</sub>O<sub>3</sub>  
 12060-18-3P, Zirconium oxide, Zr<sub>2</sub>O<sub>3</sub> 12063-27-3P, Iron sulfide, Fe<sub>2</sub>S<sub>3</sub>  
 12067-22-0P, Samarium sulfide, Sm<sub>2</sub>S<sub>3</sub> 12124-97-9P, Ammonium bromide  
 12124-99-1P, Ammonium sulfide, NH<sub>4</sub>HS 12125-01-8P, Ammonium fluoride,  
 NH<sub>4</sub>F 12125-02-9P, Ammonium chloride 12133-10-7P, Dysprosium  
 sulfide, Dy<sub>2</sub>S<sub>3</sub> 12133-95-8P, Cobalt sulfide, Co(HS)<sub>2</sub> 12134-58-6P,  
 Iron sulfide, Fe(HS)<sub>2</sub> 12135-13-6P, Mercury hydroxide, Hg(OH)<sub>2</sub>  
 12135-15-8P, Mercury sulfide, Hg(HS)<sub>2</sub> 12135-37-4P, Strontium  
 sulfide, Sr(HS)<sub>2</sub> 12135-76-1P, Ammonium sulfide 12137-20-1P,  
 Titanium oxide, TiO 12138-07-7P, Thorium sulfide, ThS<sub>2</sub>  
 12138-09-9P, Tungsten sulfide, WS<sub>2</sub> 12138-13-5P, Uranium sulfide,  
 U<sub>2</sub>S<sub>3</sub> 12139-22-9P, Cadmium peroxide, CdO<sub>2</sub> 12159-66-9P, Erbium  
 sulfide, Er<sub>2</sub>S<sub>3</sub> 12161-77-2P, Ammonium oxide, (NH<sub>4</sub>)<sub>2</sub>O 12166-32-4P,  
 Zirconium sulfide, Zr<sub>2</sub>S<sub>3</sub> 12211-52-8P, Ammonium cyanide  
 12281-24-2P, Neptunium sulfide, Np<sub>2</sub>S<sub>3</sub> 12298-67-8P, Mercury peroxide,  
 HgO<sub>2</sub> 12323-04-5P, Beryllium peroxide, BeO<sub>2</sub> 13004-83-6P, Mercury  
 carbonate, HgCO<sub>3</sub> 13106-76-8P, Ammonium molybdate(VI), (NH<sub>4</sub>)<sub>2</sub>MoO<sub>4</sub>  
 13126-12-0P, Rubidium nitrate 13255-26-0P, Barium silicate, BaSiO<sub>3</sub>  
 13320-71-3P, Molybdenum chloride, MoCl<sub>4</sub> 13327-32-7P, Beryllium  
 hydroxide 13400-13-0P, Cesium fluoride 13444-96-7P, Palladium  
 fluoride, PdF<sub>2</sub> 13446-48-5P, Ammonium nitrite 13446-57-6P,  
 Molybdenum bromide, MoBr<sub>3</sub> 13446-74-7P, Rubidium fluoride  
 13446-75-8P, Rubidium hydride 13450-91-4P, Gallium iodide  
 13451-02-0P, Strontium sulfite, SrSO<sub>3</sub> 13453-24-2P, Gold iodide, AuI<sub>3</sub>



(heat of formation of, calcn. of)

IT 13453-30-0P, Thallium chlorate, TlClO3 13453-34-4P, Thallium cyanide, TlCN 13453-37-7P, Thallium iodide, Tl(I3) 13453-40-2P, Thallium perchlorate, TlClO4 13453-45-7P, Thallium sulfate, TlHSO4 13453-46-8P, Thallium sulfite, Tl2SO3 13453-71-9P, Lithium chlorate 13453-86-6P, Lithium sulfate, LiHSO4 13453-87-7P, Lithium sulfite, Li2SO3 13454-83-6P, Cesium nitrite 13454-84-7P, Cesium perchlorate 13454-94-9P, Cerium sulfate, Ce2(SO4)3 13454-96-1P, Platinum chloride, PtCl4 13455-31-7P, Cobalt perchlorate, Co(ClO4)2 13465-09-3P, Indium bromide, InBr3 13465-30-0P, Mercury chlorate, Hg(ClO3)2 13465-94-6P, Barium nitrite 13465-95-7P, Barium perchlorate 13468-91-2P, Lead carbonate, Pb(HCO3)2 13469-98-2P, Yttrium bromide, YBr3 13470-04-7P, Strontium molybdate(VI), SrMoO4 13470-41-2P, Zinc amide 13477-09-3P, Barium hydride, BaH2 13477-19-5P, Cadmium silicate, CdSiO3 13477-23-1P, Cadmium sulfite, CdSO3 13477-36-6P, Calcium perchlorate 13478-18-7P, Molybdenum chloride, MoCl3 13478-49-4P, Erbium sulfate, Er2(SO4)3 13492-25-6P, Mercury nitrite, HgNO2 13510-35-5P, Indium iodide, InI3 13510-42-4P, Rubidium perchlorate 13510-71-9P, Yttrium sulfate, Y2(SO4)3 13520-59-7P, Molybdenum bromide, MoBr4 13536-53-3P, Praseodymium bromide, PrBr3 13536-79-3P, Lanthanum bromide, LaBr3 13536-80-6P, Neodymium bromide, NdBr3 13566-03-5P, Palladium sulfate, PdSO4 13566-10-4P, Thallium tungstate(VI), Tl2WO4 13568-33-7P, Lithium nitrite 13568-40-6P, Lithium molybdate(VI), Li2MoO4 13568-45-1P, Lithium tungstate(VI), Li2WO4 13568-71-3P, Manganese sulfite, MnSO3 13573-11-0P, Magnesium tungstate(VI), MgWO4 13587-19-4P, Cesium tungstate(VI), Cs2WO4 13597-44-9P, Zinc sulfite, ZnSO3 13597-52-9P, Rubidium tungstate(VI), Rb2WO4 13597-54-1P, Zinc selenate, ZnSeO4 13597-56-3P, Zinc tungstate(VI), ZnWO4 13597-95-0P, Beryllium perchlorate 13597-99-4P, Beryllium nitrate 13598-65-7P, Ammonium perchlorate, NH4ReO4 13637-61-1P, Zinc perchlorate 13637-76-8P, Lead perchlorate, Pb(ClO4)2 13689-92-4P, Nickel thiocyanate, Ni(SCN)2 13693-11-3P, Titanium sulfate, Ti(SO4)2 13701-70-7P, Vanadium sulfate, V2(SO4)3 13701-91-2P, Lead bromide, PbBr4 13708-69-5P, Beryllium amide 13718-22-4P, Rubidium molybdate(VI), Rb2MoO4 13759-87-0P, Samarium bromide, SmBr3 13760-37-7P, Cadmium perchlorate 13760-83-3P, Erbium fluoride, ErF3 13762-14-6P, Cobalt molybdate(VI), CoMoO4 13763-67-2P, Cesium chlorate 13763-69-4P, Thallium hydride, TlH 13768-48-4P, Lithium perchlorate, LiReO4 13768-50-8P, Magnesium perchlorate, Mg(ReO4)2 13768-51-9P, Zinc perchlorate, Zn(ReO4)2 13768-52-0P, Barium perchlorate, Ba(ReO4)2 13768-53-1P, Cadmium perchlorate, Cd(ReO4)2 13768-54-2P, Calcium perchlorate, Ca(ReO4)2 13768-55-3P, Strontium perchlorate, Sr(ReO4)2 13770-16-6P, Manganese perchlorate, Mn(ClO4)2 13772-47-9P, Cesium hydride 13814-62-5P, Cadmium selenate, CdSeO4 13818-75-2P, Gadolinium bromide, GdBr3 13825-25-7P, Rubidium nitrite 13826-63-6P, Thallium nitrite, TlNO2 13870-15-0P, Mercury selenate, HgSeO4 13870-24-1P, Iron tungstate(VI), FeWO4 13912-55-5P, Tin carbonate, SnCO3 13932-02-0P, Mercury perchlorate, HgClO4 13933-23-8P, Iron perchlorate, Fe(ClO4)2 13966-62-6P, Mercury hydride, HgH 14012-86-3P, Copper perchlorate, Cu(ReO4)2 14012-87-4P, Nickel perchlorate, Ni(ReO4)2 14012-88-5P, Manganese perchlorate, Mn(ReO4)2 14012-90-9P, Cobalt silicate, CoSiO3 14013-02-6P, Copper sulfite, CuSO3 14013-75-3P, Thallium perchlorate, TlReO4 14013-76-4P, Lead perchlorate, Pb(ReO4)2 14013-86-6P, Iron nitrate, Fe(NO3)2 14018-82-7P, Zinc hydride, ZnH2 14055-75-5P, Molybdenum iodide, MoI3 14055-76-6P, Molybdenum iodide, MoI4 14373-91-2P, Dysprosium sulfate, Dy2(SO4)3 14456-48-5P, Dysprosium bromide, DyBr3 14457-87-5P, Cerium bromide, CeBr3 14474-33-0P, Scandium iodide, ScI3 14475-63-9P, Zirconium hydroxide, Zr(OH)4

14553-36-7P, Tin tungstate(VI),  $\text{SnWO}_4$  14553-76-5P, Neptunium  
 sulfate,  $\text{Np}(\text{SO}_4)_2$  14590-19-3P, Cobalt selenate,  $\text{CoSeO}_4$   
 14644-61-2P, Zirconium sulfate,  $\text{Zr}(\text{SO}_4)_2$  14720-21-9P, Gold fluoride,  
 $\text{AuF}_3$  14721-21-2P, Copper chlorate,  $\text{Cu}(\text{ClO}_3)_2$  14902-94-4P,  
 Beryllium silicate,  $\text{BeSiO}_3$  14984-71-5P, Copper nitrite,  $\text{Cu}(\text{NO}_2)_2$   
 14986-52-8P, Cerium chloride,  $\text{CeCl}_4$  14986-91-5P, Magnesium selenate,  
 $\text{MgSeO}_4$  15070-34-5P, Magnesium nitrite 15123-62-3P, Rubidium  
 silicate,  $\text{Rb}_2\text{SiO}_3$  15192-76-4P, Copper thiocyanate,  $\text{Cu}(\text{SCN})_2$   
 15498-89-2P, Titanium sulfate,  $\text{TiSO}_4$  15513-59-4P, Mercury selenate,  
 $\text{Hg}_2\text{SeO}_4$  15513-94-7P, Vanadium iodide,  $\text{VI}_3$  15513-95-8P, Neptunium  
 iodide,  $\text{NpI}_4$  15586-77-3P, Cesium silicate,  $\text{Cs}_2\text{SiO}_3$  15593-52-9P,  
 Lithium selenate,  $\text{Li}_2\text{SeO}_4$  15600-49-4P, Iron iodide,  $\text{FeI}_3$   
 15600-74-5P, Cerium iodide,  $\text{CeI}_4$  15702-36-0P, Manganese selenate,  
 $\text{MnSeO}_4$  15773-66-7P, Tin silicate,  $\text{SnSiO}_3$  15785-09-8P, Cerium  
 hydroxide,  $\text{Ce}(\text{OH})_3$  15855-70-6P, Ammonium tungstate(VI),  $(\text{NH}_4)_2\text{WO}_4$   
 16156-13-1P, Mercury sulfate,  $\text{HgHSO}_4$  16222-66-5P, Thallium sulfate,  
 $\text{Tl}_2(\text{SO}_4)_3$  16509-17-4P, Copper silicate,  $\text{CuSiO}_3$  17014-71-0P,  
 Potassium peroxide,  $\text{K}_2\text{O}_2$  17108-85-9P,  $\text{GaCl}_3$  17153-98-9P, Beryllium  
 thiocyanate 17237-93-3P, Nickel carbonate,  $\text{Ni}(\text{HCO}_3)_2$  17861-62-0P,  
 Nickel nitrite,  $\text{Ni}(\text{NO}_2)_2$  18488-84-1P, Beryllium nitrite  
 18488-91-0P, Iron nitrite,  $\text{Fe}(\text{NO}_2)_2$  18488-92-1P, Titanium nitrite,  
 $\text{Ti}(\text{NO}_2)_2$  18488-96-5P, Cobalt nitrite,  $\text{Co}(\text{NO}_2)_2$  18496-34-9P,  
 Titanium nitrate,  $\text{Ti}(\text{NO}_3)_2$  18541-72-5P, Mercury nitrite,  $\text{Hg}(\text{NO}_2)_2$   
 18608-81-6P, Palladium nitrite,  $\text{Pd}(\text{NO}_2)_2$  18624-44-7P, Iron  
 hydroxide,  $\text{Fe}(\text{OH})_2$  18832-76-3P, Cesium sulfite,  $\text{Cs}_2\text{SO}_3$   
 18868-43-4P, Molybdenum oxide,  $\text{MoO}_2$  18897-61-5P, Gallium bromide  
 19024-61-4P, Potassium percarbonate,  $\text{KHCO}_4$  19073-56-4P, Rubidium  
 cyanide 20548-54-3P, Calcium sulfide,  $\text{CaS}$  20661-21-6P, Indium  
 hydroxide,  $\text{In}(\text{OH})_3$  21159-32-0P, Cesium cyanide 21192-37-0P, Lead  
 sulfate,  $\text{Pb}(\text{SO}_4)_2$  21645-51-2P, Aluminum hydroxide 21908-53-2P,  
 Mercury oxide,  $\text{HgO}$  22400-99-3P, Manganese cyanide,  $\text{Mn}(\text{CN})_2$   
 22750-54-5P, Cadmium chlorate 22755-27-7P, Tin nitrate,  $\text{Sn}(\text{NO}_3)_2$   
 22755-43-7P, Thallium amide,  $\text{TlNH}_2$  23299-07-2P, Nickel amide,  
 $\text{Ni}(\text{NH}_2)_2$  23731-23-9P, Copper amide,  $\text{Cu}(\text{NH}_2)_2$  25417-81-6P, Barium  
 sulfide,  $\text{Ba}(\text{HS})_2$  25454-04-0P, Beryllium sulfite,  $\text{BeSO}_3$   
 26258-19-5P, Thallium molybdate(VI),  $\text{Tl}_2\text{MoO}_4$  26412-73-7P, Lithium  
 sulfide,  $\text{LiHS}$  27911-69-9P, Nickel sulfide,  $\text{Ni}(\text{HS})_2$  28564-29-6P,  
 Uranium hydroxide,  $\text{U}(\text{OH})_4$  29209-99-2P, Thallium silicate,  $\text{Tl}_2\text{SiO}_3$   
 29491-37-0P, Lead hydroxide,  $\text{Pb}(\text{OH})_4$  31083-74-6P, Rubidium sulfide,  
 $\text{Rb}_2\text{S}$  33485-98-2P, Iron hydride,  $\text{FeH}_2$  33486-01-0P, Copper hydride,  
 $\text{CuH}_2$  34781-33-4P, Gallium sulfate 35182-15-1P, Neptunium  
 hydroxide,  $\text{Np}(\text{OH})_4$  35591-43-6P, Mercury molybdate(VI),  $\text{HgMoO}_4$   
 35667-77-7P, Tin cyanide,  $\text{Sn}(\text{CN})_2$  35869-47-7P, Ammonium silicate,  
 $(\text{NH}_4)_2\text{SiO}_3$  37020-93-2P, Mercury cyanide,  $\text{HgCN}$  37913-38-5P, Mercury  
 tungstate(VI),  $\text{HgWO}_4$  38705-19-0P, Mercury tungstate(VI),  $\text{Hg}_2\text{WO}_4$   
 38978-73-3P, Rubidium sulfite 39403-39-9P, Gold oxide 39406-97-8P,  
 Gadolinium sulfide 42765-12-8P, Titanium hydroxide,  $\text{Ti}(\text{OH})_2$   
 44121-71-3P, Nickel sulfate,  $\text{Ni}(\text{HSO}_4)_2$  49788-70-7P, Uranium  
 hydroxide,  $\text{U}(\text{OH})_3$  49788-88-7P, Neptunium hydroxide,  $\text{Np}(\text{OH})_3$   
 50820-24-1P, Iron sulfite,  $\text{FeSO}_3$  51595-71-2P, Mercury sulfide,  $\text{Hg}_2\text{S}$   
 52236-42-7P, Tin sulfite,  $\text{SnSO}_3$  52814-37-6P, Cerium bromide,  $\text{CeBr}_4$   
 52870-08-3P, Strontium cyanide 53238-24-7P, Gallium sulfide  
 53408-91-6P, Mercury thiocyanate 54010-68-3P, Manganese carbonate,  
 $\text{Mn}(\text{HCO}_3)_2$  54641-23-5P, Magnesium sulfide,  $\text{Mg}(\text{HS})_2$  55695-92-6P,  
 Mercury hydroxide,  $\text{HgOH}$  56531-94-3P, Lead sulfate,  $\text{Pb}(\text{HSO}_4)_2$   
 56897-58-6P, Mercury perhenate,  $\text{HgReO}_4$  57485-08-2P, Gold bromide  
 59865-92-8P, Vanadium hydroxide,  $\text{V}(\text{OH})_3$  63314-80-7P, Cobalt  
 perhenate,  $\text{Co}(\text{ReO}_4)_2$  63366-64-3P, Tin hydride,  $\text{SnH}_2$  67035-65-8P,  
 Palladium sulfate,  $\text{Pd}(\text{HSO}_4)_2$  67326-48-1P, Beryllium perhenate,  
 $\text{Be}(\text{ReO}_4)_2$  67485-51-2P, Mercury perhenate,  $\text{Hg}(\text{ReO}_4)_2$  67952-43-6P,

Nickel chlorate 68007-07-8P, Beryllium sulfide, Be(HS)2  
 68868-27-9P, Mercury formate, Hg(O2CH) 68938-92-1P, Platinum  
 bromide, PtBr4 71141-98-5P, Uranium sulfite, U2(SO4)3 71334-76-4P,  
 Cobalt amide, Co(NH2)2 72172-64-6P, Cadmium hydride, CdH2  
 72172-67-9P, Mercury hydride, HgH2 75234-59-2P, Thallium oxalate,  
 Tl2C2O4 80546-49-2P, Cobalt chlorate, Co(ClO3)2  
 84973-21-7P, Mercury formate, HgO2(CH)2 85885-66-1P,  
 Zirconium hydroxide, Zr(OH)3 86498-29-5P, Iron perchlorate, Fe(ReO4)2  
 89146-33-8P, Mercury sulfite, Hg2SO3 90889-54-6P, Titanium acetate,  
 Ti(OAc)2 91864-02-7P, Titanium carbonate, Ti(HCO3)2 91864-03-8P,  
 Tin carbonate, Sn(HCO3)2 91864-05-0P, Palladium carbonate, Pd(HCO3)2  
 92226-09-0P, Titanium cyanide, Ti(CN)2 93688-01-8P, Palladium  
 carbonate, PdCO3 93688-02-9P, Titanium carbonate, TiCO3  
 93936-20-0P, Neptunium sulfide, NpS2 94007-89-3P, Beryllium chlorate  
 94238-21-8P, Mercury sulfite, HgSO3 99001-66-8P, Iron amide,  
 Fe(NH2)2 99654-92-9P, Neptunium oxide, Np2O3 99770-26-0P,  
 Plutonium sulfate, Pu2(SO4)3 99770-28-2P, Neptunium sulfate,  
 Np2(SO4)3 100408-75-1P, Mercury peroxide, Hg2O2 100408-82-0P, Tin  
 amide, Sn(NH2)2 100408-83-1P, Titanium amide, Ti(NH2)2  
 100434-87-5P, Mercury amide, Hg(NH2)2 100436-22-4P, Mercury amide,  
 HgNH2 101764-35-6P, Lead hydride, PbH2 107630-45-5P, Cobalt  
 sulfite, Co(HSO4)2 107630-52-4P, Iron chlorate, Fe(ClO3)2  
 107927-28-6P, Titanium silicate, TiSiO3  
 (heat of formation of, calcn. of)

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ACCESSION NUMBER: 1952:13767 HCAPLUS Full-text

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ORIGINAL REFERENCE NO.: 46:2395f-i, 2396a-b

TITLE: Paramagnetic resonance absorption of microwaves

AUTHOR(S): Lancaster, Forrest W.; Gordy, Walter

CORPORATE SOURCE: Duke Univ., Durham, NC

SOURCE: Journal of Chemical Physics (1951), 19, 1181-91

CODEN: JCP5A6; ISSN: 0021-9606

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ED Entered STN: 22 Apr 2001

AB Paramagnetic resonance absorption in approx. 100 powdered salts containing  
 atoms of the Fe and rare earth groups and organic as well as inorg. radicals,  
 was investigated. The frequencies used ranged from 9000 to 50,000 Mc./s.  
 Exchange interaction, which affects markedly the line widths and shape, was of  
 wide occurrence even in ions separated by large organic radicals.  
 Paramagnetic resonance is a promising new method of investigating the orbital  
 properties of these organic radicals. Frequency, resonant field strength,  
 gyromagnetic ratio, and line width are tabulated for the following compds.,  
 which show paramagnetic resonance lines at room temperature: Ce(III) oxalate,  
 Cr(III) hydroxide, nitrate, sulfate, and salicylate, Cr py2(OH)2(H2O)2Cl,  
 [Cr(NH3)5Cl]Cl2, [Cr(NH3)6]Cl3.H2O, [Cr(H2O)4Cl2]Cl, [Cr(NH3)6](NO3)3.H2O,  
 K3Cr(CN)6, [Cr(SCN)2 en2](SCN), Cu(II) benzoate, fluoride, chloride, bromide,  
 formate, lactate, acetate, oxalate, and tartrate, Cu phthalocyanine, Cu  
 derivative of 2,4-pentanedione (I), Cu(NH4)2Cl4, Cu(NH4)2(SO4)2, CuWO4,  
 [Cupy4](NO3)2, Cu derivs. of 2,2-dimethyl-3,5-decanedione and of 1-phenyl-3,5-  
 hexanedione, [Cu(NH3)4]SO4, Fe(III) NH4 citrate, an Fe(III) derivative of I,  
 FeF3, Fe2(SO4)3, Fe(NH4)(SO4)2, GdCl3, Mn(BO2)2, MnCO3, MnCl2, MnSO4, MnO3,  
 NiBr2(NH3)6, a V complex of  $\alpha, \alpha'$ -(o-phenylenedinitrilo)di- o-cresol  
 (C20H14N2O3V), VOCl2, and diphenyl(trinitrophenyl)hydrazyl. Paramagnetic  
 substances for which absorption peaks could not be observed at room  
 temperature with magnetic fields up to 15,000 gauss are: 2CuCO3.Cu(OH)2,

Cu(SCN)<sub>2</sub>, Cu<sub>2</sub>Fe(CN)<sub>6</sub>, Cu<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub>, Cu(BO<sub>2</sub>)<sub>2</sub>, Cu(NO<sub>2</sub>)<sub>2</sub>·3Cu(OH)<sub>2</sub>, CuMnO<sub>4</sub>, CuCr<sub>2</sub>O<sub>7</sub>, Cu<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>, Cu(CN)<sub>2</sub>, CuO, CuS, Co(OAc)<sub>2</sub>, CoCO<sub>3</sub>, CoCl<sub>2</sub>, Co(OH)<sub>2</sub>, Co(NO<sub>3</sub>)<sub>2</sub>, CoSO<sub>4</sub>, a Co complex of salicylaldehyde (Co(C<sub>7</sub>H<sub>5</sub>O<sub>2</sub>)<sub>2</sub>·2H<sub>2</sub>O), K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>, K<sub>2</sub>CrO<sub>4</sub>, Cr<sub>2</sub>O<sub>3</sub>, Cr salicylate, Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>, Ce(SO<sub>4</sub>)<sub>2</sub>, a Ce derivative of I, FeCl<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub>, FeSO<sub>4</sub>, FeC<sub>2</sub>O<sub>4</sub>, Fe(NH<sub>4</sub>)<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>, FeCl<sub>3</sub>, MnO<sub>2</sub>, Ni<sub>2</sub>O<sub>3</sub>, NiO, NiF<sub>2</sub>, Ni(NO<sub>3</sub>)<sub>2</sub>, NiCl<sub>2</sub>, NiSO<sub>4</sub>, a Ni derivative of I, Ni(SO<sub>3</sub>)<sub>2</sub>·4NH<sub>3</sub>, Ni(SO<sub>4</sub>)<sub>2</sub>·6NH<sub>3</sub>, Ni(NH<sub>4</sub>)<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>, Ni<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>, K<sub>2</sub>Ni(SO<sub>4</sub>)<sub>2</sub>, La<sub>2</sub>O<sub>3</sub>, LaCl<sub>3</sub>, La(NO<sub>3</sub>)<sub>3</sub>, NdCl<sub>3</sub>, Nd(NO<sub>3</sub>)<sub>3</sub>, Pr(NO<sub>3</sub>)<sub>3</sub>, PrCl<sub>3</sub>, SmCl<sub>3</sub>, Sm(NO<sub>3</sub>)<sub>3</sub>, YCl<sub>3</sub>, and Y<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>. Evidence was found in Cu acetate for the simultaneous transition of electrons in neighboring ions with the absorption of a single quantum.

IT 544-19-4, Copper formates, Cu(HCO<sub>2</sub>)<sub>2</sub> 4367-08-2, Copper cyanide, Cu(CN)<sub>2</sub> (microwave absorption by)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)

CH=CH-CH

● 1/2 Cu(II)

RN 4367-08-2 HCAPLUS

CN Copper cyanide (Cu(CN)<sub>2</sub>) (9CI) (CA INDEX NAME)

N=C-Cu-C=N

CC 3 (Electronic Phenomena and Spectra)

IT 71-48-7, Cobalt acetate, Co(OAc)<sub>2</sub> 90-02-8, Salicylaldehyde, cobalt complex 139-42-4, Cerium oxalate, Ce<sub>2</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>3</sub> 142-71-2, Copper acetate, Cu(OAc)<sub>2</sub> 513-79-1, Cobalt carbonate, CoCO<sub>3</sub> 516-03-0, Iron oxalate, FeC<sub>2</sub>O<sub>4</sub> 533-01-7, Copper benzoate, Cu(OBz)<sub>2</sub> 544-19-4, Copper formates, Cu(HCO<sub>2</sub>)<sub>2</sub> 598-62-9, Manganese carbonate, MnCO<sub>3</sub> 814-91-5, Copper oxalate, CuC<sub>2</sub>O<sub>4</sub> 815-82-7, Copper tartrate, CuC<sub>4</sub>H<sub>4</sub>O<sub>6</sub> 1308-14-1, Chromium hydroxide, Cr(OH)<sub>3</sub> 1308-38-9, Chromium oxide, Cr<sub>2</sub>O<sub>3</sub> 1309-37-1, Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) 1312-81-8, Lanthanum oxide, La<sub>2</sub>O<sub>3</sub> 1313-99-1, Nickel oxide, NiO 1314-06-3, Nickel oxide, Ni<sub>2</sub>O<sub>3</sub> 3946-91-6, o-Cresol, α,α'-(o-phenylenedinitrilo)di-, vanadium complex 4367-08-2, Copper cyanide, Cu(CN)<sub>2</sub> 7646-79-9, Cobalt chloride, CoCl<sub>2</sub> 7705-08-0, Iron chloride 7720-78-7, Iron sulfate, FeSO<sub>4</sub> 7773-01-5, Manganese chloride, MnCl<sub>2</sub> 7778-50-9, Potassium dichromate 7783-50-8, Iron fluoride, FeF<sub>3</sub> 7785-87-7, Manganese sulfate, MnSO<sub>4</sub> 7786-81-4, Nickel sulfate, NiSO<sub>4</sub> 7789-00-6, Potassium chromate 7789-19-7, Copper fluoride, CuF<sub>2</sub> 7789-45-9, Copper bromide, CuBr<sub>2</sub> 7798-23-4, Copper phosphate, Cu<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> 10024-93-8, Neodymium chloride, NdCl<sub>3</sub> 10028-18-9, Nickel fluoride, NiF<sub>2</sub> 10045-95-1, Neodymium nitrate, Nd(NO<sub>3</sub>)<sub>3</sub> 10099-58-8, Lanthanum chloride, LaCl<sub>3</sub> 10099-59-9, Lanthanum nitrate, La(NO<sub>3</sub>)<sub>3</sub> 10124-43-3, Cobalt sulfate, CoSO<sub>4</sub> 10138-52-0, Gadolinium chloride, GdCl<sub>3</sub> 10141-05-6, Cobalt nitrate, Co(NO<sub>3</sub>)<sub>2</sub> 10213-09-9, Vanadium chloride, VOCl<sub>2</sub> 10361-79-2, Praseodymium chloride, PrCl<sub>3</sub>

10361-80-5, Praseodymium nitrate,  $\text{Pr}(\text{NO}_3)_3$  10361-82-7, Samarium chloride,  $\text{SmCl}_3$  10361-83-8, Samarium nitrate,  $\text{Sm}(\text{NO}_3)_3$  10361-92-9, Yttrium chloride,  $\text{YCl}_3$  10381-36-9, Nickel phosphate,  $\text{Ni}_3(\text{PO}_4)_2$  10402-23-0, Ammonium iron sulfate 10402-23-0, Iron ammonium sulfate 11129-60-5, Manganese oxide 13454-94-9, Cerium sulfate,  $\text{Ce}_2(\text{SO}_4)_3$  13510-71-9, Yttrium sulfate,  $\text{Y}_2(\text{SO}_4)_3$  13548-38-4, Chromium nitrate,  $\text{Cr}(\text{NO}_3)_3$  13587-25-2, Copper ammonium sulfate,  $(\text{NH}_4)_2\text{Cu}(\text{SO}_4)_2$  13590-82-4, Cerium sulfate,  $\text{Ce}(\text{SO}_4)_2$  13601-11-1, Potassium cyanochromate(III)  $(\text{K}_3\text{Cr}(\text{CN})_6)$  13601-13-3, Copper ferrocyanide,  $\text{Cu}_2\text{Fe}(\text{CN})_6$  13675-47-3, Copper dichromate  $(\text{CuCr}_2\text{O}_7)$  15699-18-0, Ammonium nickel sulfate,  $(\text{NH}_4)_2\text{Ni}(\text{SO}_4)_2$  16039-52-4, Copper lactate 21041-93-0, Cobalt hydroxide,  $\text{Co}(\text{OH})_2$  25718-61-0, Chromium salicylate 40105-04-2, Manganese borate,  $\text{Mn}(\text{BO}_2)_2$  44612-23-9, Copper thiocyanate,  $\text{Cu}(\text{SCN})_2$  52393-50-7, 2,4-Hexanedione, 6-phenyl-, copper derivative 128953-47-9, Phthalocyanine, copper derivative 170954-50-4, 3,5-Decanedione, 2,2-dimethyl-, copper derivative 713542-88-2, Cobalt, compound with salicylaldehyde (microwave absorption by)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L19 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1949:14430 HCAPLUS Full-text

DOCUMENT NUMBER: 43:14430

ORIGINAL REFERENCE NO.: 43:2829a-i,2830a-c

TITLE: Lattice energies of salts of metals of the subgroups of the periodic system

AUTHOR(S): Yatsimirskii, K. B.

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1948) 590-8

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

ED Entered STN: 22 Apr 2001

AB (1) Wall's (C.A. 33, 4864.3) expression for the energy of formation  $W$  of a compound with partly ionic (subscript i), partly covalent (subscript c) bond, written in the form  $W = W_i - [1/(1 - a^2)] (W_c - W_i)$  (where  $a$  = coefficient in the wave-function equation  $\psi = \psi_c + a\psi_i$ ), is transformed into  $W = W_i - [b^2/(1 - 2b)](W_c - W_i)$ , where  $b = 1/(1 + a)$  expresses the fraction of covalent,  $(1 - b)$  the fraction of ionic, bond. An analogous equation relates the total, ionic, and covalent lattice energies,  $U$ ,  $U_i$ , and  $U_c$ . Of these,  $U_i$  is obtained by the equation of Kapustinskii (Zhur. Obshchei. Khim. 13, 497(1943))  $U_i = 287.2\sum z_n z_l [1 - 0.345/(r_l + r_z)]/(r_l + r_z)$  where  $\sum z_n$  = number of ions,  $z$  = the ionic charges,  $r$  = the ionic radii.  $U_c$  is obtained by considering, successively, the energy of sublimation (which can be disregarded), the rupture of the covalent bond in the gaseous mol. MX, with the dissociation energy (according to Pauling)  $D = 1/2 \text{ DM-M} + 1/2 \text{ DX-X}$ , and the ionization energy  $I$  of  $M$  and the electron affinity  $F$  of  $X$ ; this gives  $U_c = I + 1/2 \text{ DM-M} - F + 1/2 \text{ DX-X}$ , and, with the empirical relation  $\text{DM-M} = 1/8 \theta$  (Debye's characteristic temperature), and  $\text{EM} = I + 1/8 \theta$  [or, in the case of salts  $\text{MX}_2$ ,  $\text{EM} = I_1 + I_2 + 2 + 1/8 \theta$ , where 1 and 2 refer to 1st and 2nd ionization] and  $\text{EX} = F - 1/2 \text{ DX-X}$ ,  $U_c = \text{EM} - \text{EX}$ , and  $U = U_i - [b^2/(1 - 2b)] (\text{EM} - 2\text{EX} - U_i)$ . On the other hand, calcs. of  $U$  by the Haber-Born cycle give the semi-empirical relation  $b = 0.5 + 0.002 (\text{EM} - 2\text{MX} - U_i)$ ; hence,  $U = U_i + 250 b^2$ . (2) Numerical calcs., using the thermochem. data of Bichowsky and Rossini (The Thermochemistry of the Chemical Substances, 1936, (C.A. 30, 6279.1)) give the following values of  $U$  and  $b$ , resp.:  $\text{HgI}_2$  595, 0.72;  $\text{Hg}(\text{CN})_2$  641, 0.70;  $\text{Hg}(\text{CNS})_2$  610, 0.67;  $\text{HgBr}_2$  599, 0.64;  $\text{HgCl}_2$  608, 0.60;  $\text{CuI}_2$  628, 0.70;  $\text{CuBr}_2$  635, 0.61;  $\text{Cu}(\text{OH})_2$  744, 0.60;  $\text{Cu}(\text{HCO}_2)_2$  686, 0.55;  $\text{CuCl}_2$  647, 0.55;

Cu(NO<sub>3</sub>)<sub>2</sub> 635, 0.56; ZnI<sub>2</sub> 604, 0.63; Zn(CN)<sub>2</sub> 657, 0.59; ZnBr<sub>2</sub> 616, 0.55; Zn(OH)<sub>2</sub> 720, 0.51; Zn(HCO<sub>2</sub>)<sub>2</sub> 670, 0.49; ZnCl<sub>2</sub> 630, 0.49; NiI<sub>2</sub> 605, 0.61; NiBr<sub>2</sub> 619, 0.52; Ni(OH)<sub>2</sub> 731, 0.51; NiCl<sub>2</sub> 633, 0.47; Ni(NO<sub>3</sub>)<sub>2</sub> 627, 0.47; CoI<sub>2</sub> 595, 0.60; CoBr<sub>2</sub> 609, 0.52; Co(OH)<sub>2</sub> 719, 0.50; CoCl<sub>2</sub> 623, 0.46; Co(NO<sub>3</sub>)<sub>2</sub> 610, 0.46; CdI<sub>2</sub> 561, 0.58; Cd(CN)<sub>2</sub> 611, 0.57; CdBr<sub>2</sub> 573, 0.50; Cd(OH)<sub>2</sub> 676, 0.53; CdCl<sub>2</sub> 584, 0.46; FeI<sub>2</sub> 584, 0.56; FeBr<sub>2</sub> 598, 0.48; Fe(OH)<sub>2</sub> 709, 0.47; FeCl<sub>2</sub> 614, 0.42; MnI<sub>2</sub> 557, 0.51; MnBr<sub>2</sub> 575, 0.43; Mn(OH)<sub>2</sub> 679, 0.44; Mn(HCO<sub>2</sub>)<sub>2</sub> 631, 0.38; MnCl<sub>2</sub> 590, 0.38; Mn(NO<sub>3</sub>)<sub>2</sub> 576, 0.38; PbI<sub>2</sub> 491, 0.45; Pb(CNS)<sub>2</sub> 513, 0.41; PbBr<sub>2</sub> 506, 0.38; Pb(OH)<sub>2</sub> 599, 0.43; Pb(HCO<sub>2</sub>)<sub>2</sub> 554, 0.36; PbCl<sub>2</sub> 519, 0.34; Pb(NO<sub>3</sub>)<sub>2</sub> 508, 0.34; PbF<sub>2</sub> 574, 0.17. The above values of U agree with those calculated by the Haber-Born cycle within 1-2%, except in the case of FeI<sub>2</sub>, MnI<sub>2</sub>, and PbF<sub>2</sub> where the discrepancy still is less than 3%. Use of the data of Hieber, et al. (C.A. 28, 5324.6) for FeI<sub>2</sub>, rather than those of B. and R., gives somewhat better agreement. Roughly, the tendency to formation of a covalent bond decreases, in the bivalent cation series, in the order Hg, Cu, Zn, Ni, Co, Cd, Fe, Mn, Pb, in the univalent anion series in the order I, CN, CNS, Br, OH, HCO<sub>3</sub>, Cl, NO<sub>3</sub>, F. The tendency to form complex ions with predominant covalent bonding within the complex should decrease in the same order. Covalent bonding is favored by high I, low F, and high r; from this point of view, Pt<sup>++</sup>, Pd<sup>++</sup>, and Hg<sup>++</sup> should be most prone to covalency.

(3) The following are resp., U values calculated for salts of unknown heat of formation, values of b, and heats of formation calculated by the Haber-Born cycle, the latter with an uncertainty of up to  $\pm 15$  kcal./mole: HgF<sub>2</sub> 646, 0.41, 96; CuF<sub>2</sub> 701, 0.33, 111; ZnF<sub>2</sub> 690, 0.27, 164; NiF<sub>2</sub> 698, 0.24, 148; CoF<sub>2</sub> 689, 0.24, 149; CdF<sub>2</sub> 638, 0.27, 151; FeF<sub>2</sub> 681, 0.20, 165; MnF<sub>2</sub> 658, 0.17, 192; Cu(CNS)<sub>2</sub> 642, 0.63, -59; Zn(CNS)<sub>2</sub> 626, 0.58, -10; Ni(CNS)<sub>2</sub> 627, 0.55, -34; Co(CNS)<sub>2</sub> 616, 0.54, -35; Cd(CNS)<sub>2</sub> 581, 0.53, -17; Fe(CNS)<sub>2</sub> 606, 0.51, -21; Mn(CNS)<sub>2</sub> 580, 0.45, 3; Cu(CN)<sub>2</sub> 677, 0.66, -73; Ni(CN)<sub>2</sub> 659, 0.58, -51; Co(CN)<sub>2</sub> 649, 0.57, -51; Fe(CN)<sub>2</sub> 639, 0.53, -37; Mn(CN)<sub>2</sub> 610, 0.49, -16; Pb(CN)<sub>2</sub> 538, 0.45, -46; Hg(HCO<sub>2</sub>)<sub>2</sub> 647, 0.60, 178; Ni(HCO<sub>2</sub>)<sub>2</sub> 674, 0.47, 205; Co(HCO<sub>2</sub>)<sub>2</sub> 664, 0.46, 205; Cd(HCO<sub>2</sub>)<sub>2</sub> 625, 0.46, 219; Fe(HCO<sub>2</sub>)<sub>2</sub> 654, 0.42, 219; Hg(OH)<sub>2</sub> 702, 0.67, 99; Hg(NO<sub>3</sub>)<sub>2</sub> 596, 0.60, 72; Zn(NO<sub>3</sub>)<sub>2</sub> 616, 0.50, 116; Cd(NO<sub>3</sub>)<sub>2</sub> 573, 0.46, 111; Fe(NO<sub>3</sub>)<sub>2</sub> 601, 0.46, 111. (4) Heats of solution in H<sub>2</sub>O (dilution in parentheses) were determined calorimetrically for Cd(NO<sub>3</sub>)<sub>2</sub> (2300-2750) 8450, and Cd(CNS)<sub>2</sub> (6000-8000) - 5790 cal. Heats of reaction with 1 N HCl were determined for Ni(HCO<sub>2</sub>)<sub>2</sub>, 7540, and Co(HCO<sub>2</sub>)<sub>2</sub>, 7670 cal. With the aid of the B. and R. data of the heats of formation of the initial and final products, the following standard heats of formation  $-\Delta H^\circ_{298}$  of the solid salts were calculated: Co(HCO<sub>2</sub>)<sub>2</sub> 209.66, Ni(HCO<sub>2</sub>)<sub>2</sub> 208.48, Cd(NO<sub>3</sub>)<sub>2</sub> 107.6, Cd(CNS)<sub>2</sub> 14.3 kcal. The B. and R. value of 77 for Cd(NO<sub>3</sub>)<sub>2</sub>, admittedly doubtful, is thus proved to be erroneous. The exptl.  $-\Delta H^\circ_{298}$  values for the 4 salts agree with the calculated values within 5 kcal. or better, which confirms the correctness of the calcs.

IT 3047-59-4F, Iron formate, Fe(HCO<sub>2</sub>)<sub>2</sub> 4367-08-2F,  
Copper cyanide, Cu(CN)<sub>2</sub> 4464-23-7F, Cadmium formate  
84973-21-7F, Mercury formate, Hg(OOCH)<sub>2</sub>  
(heat of formation and lattice energy of)  
RN 3047-59-4 HCAPLUS  
CN Formic acid, iron(2+) salt (8CI, 9CI) (CA INDEX NAME)

CH=CH-OH

● 1/2 Fe(II)

RN 4367-08-2 HCAPLUS

CN Copper cyanide (Cu(CN)2) (9CI) (CA INDEX NAME)



RN 4464-23-7 HCAPLUS

CN Formic acid, cadmium salt (8CI, 9CI) (CA INDEX NAME)



RN 84973-21-7 HCAPLUS

CN Formic acid, mercury(2+) salt (9CI) (CA INDEX NAME)



IT 3349-06-2F, Nickel formate, Ni(HCO2)2

(heat of formation and reaction with HCl, and lattice energy of)

RN 3349-06-2 HCAPLUS

CN Formic acid, nickel(2+) salt (2:1) (CA INDEX NAME)



IT 544-19-4, Copper formates, Cu(HCO2)2 557-41-5,

Zinc formate 811-54-1, Lead formate, Pb(HCC2)2

3251-96-5, Manganese formate

(lattice energy of)

RN 544-19-4 HCAPLUS

CN Formic acid, copper(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Cu(II)

RN 557-41-5 HCAPLUS  
CN Formic acid, zinc salt (2:1) (CA INDEX NAME)



● 1/2 Zn

RN 811-54-1 HCAPLUS  
CN Formic acid, lead(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Pb(II)

RN 3251-96-5 HCAPLUS  
CN Formic acid, manganese(2+) salt (2:1) (CA INDEX NAME)



● 1/2 Mn(II)

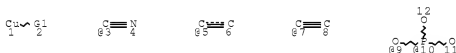
CC 2 (General and Physical Chemistry)  
IT 542-84-7P, Cobalt cyanide (Co(CN)<sub>2</sub>) 557-19-7P, Nickel cyanide, Ni(CN)<sub>2</sub> 557-42-6P, Zinc thiocyanate 592-05-2P, Lead cyanide, Pb(CN)<sub>2</sub> 3017-60-5P, Cobalt thiocyanate, Co(CNS)<sub>2</sub> 3047-59-4P, Iron formate, Fe(HCO<sub>2</sub>)<sub>2</sub> 4367-08-2P, Copper cyanide, Cu(CN)<sub>2</sub> 4464-23-7P, Cadmium formate 7779-88-6P, Zinc nitrate 7782-64-1P, Manganese fluoride, MnF<sub>2</sub> 7783-39-3P, Mercury fluoride, HgF<sub>2</sub> 7783-49-5P, Zinc fluoride 7789-19-7P, Copper fluoride, CuF<sub>2</sub> 7789-28-8P, Iron fluoride, FeF<sub>2</sub> 7790-79-6P, Cadmium fluoride 10026-17-2P, Cobalt fluoride, CoF<sub>2</sub> 10028-18-9P, Nickel fluoride, NiF<sub>2</sub> 10045-94-0P, Mercury nitrate, Hg(NO<sub>3</sub>)<sub>2</sub> 12135-13-6P, Mercury hydroxides, Hg(OH)<sub>2</sub> 13689-92-4P, Nickel thiocyanate 14013-86-6P, Iron nitrate, Fe(NO<sub>3</sub>)<sub>2</sub> 22400-99-3P, Manganese cyanide, Mn(CN)<sub>2</sub> 25327-03-1P, Manganese thiocyanate 44612-23-9P, Copper thiocyanate, Cu(SCN)<sub>2</sub>



84973-21-7E, Mercury formate,  $\text{Hg}(\text{OOCH})_2$   
 (heat of formation and lattice energy of)  
 IT 3349-66-2E, Nickel formate,  $\text{Ni}(\text{HCO}_2)_2$   
 (heat of formation and reaction with  $\text{HCl}$ , and lattice energy of)  
 IT 542-83-6, Cadmium cyanide  $(\text{Cd}(\text{CN})_2)$  544-19-4, Copper  
 formates,  $\text{Cu}(\text{HCO}_2)_2$  557-21-1, Zinc cyanide 557-41-5,  
 Zinc formate 592-04-1, Mercury cyanide,  $\text{Hg}(\text{CN})_2$  592-85-8, Mercury  
 thiocyanate,  $\text{Hg}(\text{SCN})_2$  592-87-0, Lead thiocyanate,  $\text{Pb}(\text{SCN})_2$   
 811-54-1, Lead formate,  $\text{Pb}(\text{HCC}_2)_2$  3251-23-8, Copper nitrate  
 3251-96-5, Manganese formate 7447-39-4, Copper chloride,  
 $\text{CuCl}_2$  7487-94-7, Mercury chloride,  $\text{HgCl}_2$  7646-79-9, Cobalt  
 chloride,  $\text{CoCl}_2$  7646-85-7, Zinc chloride 7699-45-8, Zinc bromide  
 7758-94-3, Iron chloride,  $\text{FeCl}_2$  7758-95-4, Lead chloride,  $\text{PbCl}_2$   
 7773-01-5, Manganese chloride,  $\text{MnCl}_2$  7783-46-2, Lead fluoride,  $\text{PbF}_2$   
 7783-86-0, Iron iodide,  $\text{FeI}_2$  7789-42-6, Cadmium bromide 7789-43-7,  
 Cobalt bromide,  $\text{CoBr}_2$  7789-45-9, Copper bromide,  $\text{CuBr}_2$  7789-46-0,  
 Iron bromide,  $\text{FeBr}_2$  7789-47-1,  $\text{HgBr}_2$  7790-80-9, Cadmium iodide  
 10031-22-8, Lead bromide,  $\text{PbBr}_2$  10099-74-8, Lead nitrate,  $\text{Pb}(\text{NO}_3)_2$   
 10108-64-2, Cadmium chloride 10139-47-6, Zinc iodide 10141-05-6,  
 Cobalt nitrate,  $\text{Co}(\text{NO}_3)_2$  10377-66-9, Manganese nitrate,  $\text{Mn}(\text{NO}_3)_2$   
 12054-48-7, Nickel hydroxide,  $\text{Ni}(\text{OH})_2$  13138-45-9, Nickel nitrate,  
 $\text{Ni}(\text{NO}_3)_2$  13446-03-2, Manganese bromide,  $\text{MnBr}_2$  13462-88-9, Nickel  
 bromide,  $\text{NiBr}_2$  13462-90-3, Nickel iodide,  $\text{NiI}_2$  13767-71-0, Copper  
 iodides,  $\text{CuI}_2$  15238-00-3, Cobalt iodide,  $\text{CoI}_2$  18624-44-7, Iron  
 hydroxide,  $\text{Fe}(\text{OH})_2$  18933-05-6, Manganese hydroxide,  $\text{Mn}(\text{OH})_2$   
 19783-14-3, Lead hydroxide,  $\text{Pb}(\text{OH})_2$  20427-58-1, Zinc hydroxide  
 20427-59-2, Copper hydroxide,  $\text{Cu}(\text{OH})_2$  21041-93-0, Cobalt hydroxide,  
 $\text{Co}(\text{OH})_2$  21041-95-2, Cadmium hydroxide  
 (lattice energy of)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
 RECORD (1 CITINGS)

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        I OR 603-35-0/BI OR 624-88-4/BI OR 64-18-6/BI OR 6476-36-4/
        BI OR 7188-38-7/BI OR 7440-50-8/BI OR 7650-88-6/BI OR
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L4      STR
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VAR G1=3/5/7/9/10

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

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L12     15157 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L6
L13     27 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L11 AND L12
L14     STR
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COOH 1

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE

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 L25 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 64-18-6/RN  
 L26 14 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L22 NOT L25  
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 L28 20431 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L26  
 L29 43386 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L25  
 L30 9 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L27 AND L28 AND  
 (L29 OR L6)  
 L31 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L30 NOT (L18 OR  
 L19)

=> d l31 1-8 ibib ed abs hitstr hitind

L31 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 ACCESSION NUMBER: 2009:208968 HCAPLUS Full-text  
 TITLE: Product class 5: hydroxylamines  
 AUTHOR(S): Geffken, D.; Koellner, M. A.  
 CORPORATE SOURCE: Institut fuer Pharmazie, Universitaet Hamburg,  
 Hamburg, 20146, Germany  
 SOURCE: Science of Synthesis (2009), Volume Date 2008,  
 40b, 937-1082  
 CODEN: SSCYJ9  
 PUBLISHER: Georg Thieme Verlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 20 Feb 2009  
 AB Unavailable  
 IT INDEXING IN PROGRESS  
 IT 64-18-6 7440-50-8)  
 RN 64-18-6 HCAPLUS  
 CN Formic acid (CA INDEX NAME)

◻ CH—OH

RN 7440-50-8 HCAPLUS  
 CN Copper (CA INDEX NAME)

Cu

IT 122-52-1)  
 RN 122-52-1 HCAPLUS  
 CN Phosphorous acid, triethyl ester (CA INDEX NAME)

Obt  
EtO-Obt

CC 25 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 IT 57-13-6 60-34-4 64-18-6 68-05-3 74-89-5 96-10-6  
 97-94-9 100-63-0 104-15-4 108-01-0 108-98-5 141-43-5  
 429-41-4 524-38-9 544-97-8 557-20-0 603-35-0 617-86-7  
 688-73-3 695-64-7 733-44-8 766-77-8 775-12-2 1309-60-0  
 1314-15-4 1643-19-2 1795-31-9 2950-43-8 3030-47-5 4143-61-7  
 5137-55-3 5518-52-5 6674-22-2 7087-68-5 7429-90-5 7440-23-5  
 7440-50-8 7440-66-6 7487-94-7 7646-79-9 7693-26-7  
 7699-45-8 7761-88-8 7772-99-8 7773-03-7 7789-48-2 7790-86-5  
 7791-03-9 7803-49-8 10035-10-6 10599-90-3 12135-22-7  
 13283-31-3 20703-41-7 22737-36-6 32248-43-4 56741-77-6  
 74087-85-7 81408-53-9 81408-56-2 85006-25-3 98327-87-8  
 153305-67-0 325477-93-8 862421-89-4 939987-56-1  
 IT 51-75-2 60-12-8 60-29-7 64-04-0 64-67-5 65-64-5 67-62-9  
 67-64-1 74-87-3 75-00-3 75-03-6 75-07-0 75-16-1 75-17-2  
 75-21-8 75-30-9 75-65-0 75-85-4 77-78-1 78-77-3 79-08-3  
 79-09-4 79-11-8 79-31-2 80-58-0 91-00-9 94-36-0 95-14-7  
 95-77-2 96-09-3 96-10-6 96-33-3 98-52-2 98-55-5 98-59-9  
 98-80-6 98-83-9 98-88-2 99-61-6 100-11-8 100-39-0 100-44-7  
 100-46-9 100-51-6 100-52-7 100-58-3 100-59-4 100-64-1  
 100-86-7 103-05-9 103-63-9 105-36-2 106-89-8 106-92-3  
 106-93-4 106-95-6 106-96-7 107-05-1 107-14-2 107-22-2  
 107-40-4 107-92-6 107-99-3 108-03-2 108-88-3 108-93-0  
 108-94-1 108-95-2 109-05-7 109-53-5 109-54-6 109-64-8  
 109-65-9 109-97-7 110-02-1 110-52-1 110-83-8 110-87-2  
 110-89-4 110-91-8 111-24-0 111-34-2 111-78-4 111-83-1  
 111-92-2 112-89-0 115-11-7 115-19-5 116-11-0 120-72-9  
 122-52-1 122-60-1 122-97-4 123-72-8 123-75-1  
 124-63-0 127-06-0 127-07-1 140-29-4 142-29-0 143-15-7  
 144-62-7 280-57-9 329-79-3 333-27-7 334-99-6 345-35-7  
 352-13-6 359-63-7 364-81-8 373-52-4 421-06-7 431-40-3  
 456-42-8 463-49-0 495-18-1 500-22-1 513-35-9 513-48-4  
 524-38-9 534-22-5 535-11-5 536-74-3 540-88-5 541-59-3  
 544-97-8 556-52-5 557-20-0 558-17-8 563-47-3 563-79-1  
 565-74-2 574-66-3 574-98-1 584-07-6 585-71-7 588-95-4  
 589-10-6 589-17-3 589-41-3 590-17-0 590-18-1 590-67-0  
 590-86-3 591-50-4 591-51-5 591-87-7 593-77-1 594-19-4  
 594-70-7 598-30-1 598-72-1 600-00-0 611-17-6 614-45-9  
 614-47-1 616-05-7 616-24-0 618-36-0 620-13-3 621-07-8  
 622-30-0 622-31-1 622-33-3 622-95-7 624-75-9 624-86-2  
 626-62-0 626-87-9 627-41-8 628-91-1 628-92-2 630-19-3  
 683-60-3 689-98-5 690-08-4 690-37-9 693-02-7 693-04-9  
 719-89-1 762-49-2 764-47-6 764-48-7 765-43-5 768-66-1  
 768-90-1 768-93-4 768-94-5 768-95-6 776-74-9 817-87-8  
 846-93-5 873-66-5 917-57-7 917-95-3 925-90-6 927-77-5  
 930-88-1 931-51-1 931-88-4 933-11-9 936-98-1 939-26-4  
 941-69-5 954-81-4 1002-13-7 1066-54-2 1068-55-9 1117-97-1  
 1118-02-1 1120-71-4 1122-60-7 1122-91-4 1184-78-7 1188-63-2  
 1192-06-9 1192-28-5 1445-91-6 1450-58-4 1453-52-7 1462-03-9  
 1485-74-1 1504-58-1 1556-18-9 1576-39-2 1589-82-8 1594-94-1  
 1631-25-0 1633-83-6 1643-20-5 1663-39-4 1730-25-2 1803-98-1  
 1826-67-1 1912-32-9 1914-20-1 1914-21-2 2038-57-5 2043-61-0  
 2186-24-5 2211-64-5

REFERENCE COUNT: 787 THERE ARE 787 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L31 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:191857 HCAPLUS Full-text  
TITLE: Synthesis of alkyl- and cycloalkylamines by  
rearrangement  
AUTHOR(S): Purchase, R.; Sainsbury, M.  
CORPORATE SOURCE: Department of Chemistry and Biochemistry,  
University of Sussex, Falmer Brighton, BN1 9QJ, UK  
SOURCE: Science of Synthesis (2009), Volume Date 2008,  
40a, 365-418  
CODEN: SSCYJ9  
PUBLISHER: Georg Thieme Verlag  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English  
ED Entered STN: 18 Feb 2009  
AB A review of methods to prepare alkyl- and cycloalkylamines by rearrangement.  
IT INDEXING IN PROGRESS  
IT 998-40-3 7440-50-8, Copper  
(review preparation of alkyl/cycloalkylamines via rearrangement)  
RN 998-40-3 HCAPLUS  
CN Phosphine, tributyl- (CA INDEX NAME)



RN 7440-50-8 HCAPLUS  
CN Copper (CA INDEX NAME)

Cu

IT 64-18-6, Formic acid  
(review preparation of alkyl/cycloalkylamines via rearrangement)  
RN 64-18-6 HCAPLUS  
CN Formic acid (CA INDEX NAME)



CC 21-0 (General Organic Chemistry)  
IT 71-91-0 75-12-7, Formamide 75-56-9 98-59-9 109-02-4  
110-91-8, Morpholine 128-08-5 144-62-7, Ethanedioic acid  
507-40-4 536-80-1 538-75-0 541-41-3 585-48-8 591-51-5  
603-35-0 998-40-3 1122-58-3 1643-19-2 3240-34-4  
4648-54-8 6674-22-2 7440-50-8, Copper 7486-26-2  
7647-15-6, Sodium bromide (NaBr) 7681-52-9 7693-26-7, Potassium  
hydride (KH) 7697-37-2, Nitric acid 7782-79-8, Hydrazoic acid

7790-28-5 10049-08-8, Ruthenium chloride (RuCl<sub>3</sub>) 10294-33-4  
 17455-13-9, 1,4,7,10,13,16-Hexaoxacyclooctadecane 24608-52-4  
 23686-88-9 81408-53-9 81408-56-2 325477-93-8, Potassate (K)  
 337913-25-4 871024-86-1  
 (review preparation of alkyl/cycloalkylamines via rearrangement)  
 IT 55-21-0, Benzamide 60-35-5, Acetamide 62-23-7 64-18-6,  
 Formic acid 79-05-0, Propanamide 90-26-6 90-27-7 98-09-9,  
 Benzenesulfonyl chloride 98-88-4, Benzoyl chloride 98-92-0,  
 3-Pyridinecarboxamide 99-94-5 100-09-4 100-65-2 100-94-7  
 101-41-7 102-93-2, Benzenepropanamide 103-80-0, Benzenecetyl  
 chloride 103-81-1, Benzenecetamide 103-83-3 107-18-6,  
 2-Propen-1-ol 108-24-7 353-85-5 501-52-0, Benzenepropanoic acid  
 501-53-1 503-74-2 541-35-5, Butanamide 545-06-2 579-11-3  
 586-76-5 619-55-6 619-56-7 619-65-8 619-80-7 623-73-4  
 626-97-1, Pentanamide 627-37-2 627-63-4 628-02-4, Hexanamide  
 628-62-6, Heptanamide 629-01-6, Octanamide 638-58-4,  
 Tetradecanamide 754-10-9 828-51-3 832-80-4 926-04-5  
 1120-07-6, Nonanamide 1120-16-7, Dodecanamide 1122-56-1,  
 Cyclohexanecarboxamide 1125-70-8 1459-39-8,  
 Cycloheptanecarboxamide 1461-97-8 1503-98-6,  
 Cyclobutanecarboxamide 1521-95-5 2270-20-4, Benzenepentanoic acid  
 2650-67-1 2788-23-0 2916-68-9 3061-75-4, Docosanamide  
 3217-94-5, Cyclopentanecarboxamide 3282-32-4 3424-93-9 3471-10-1  
 4303-70-2 4407-36-7 4422-95-1, 1,3,5-Benzenetricarbonyl  
 trichloride 4525-46-6 4668-37-5 4976-88-9 5256-74-6  
 5511-18-2, Tricyclo[3.3.1.1<sup>3,7</sup>]decane-1-carboxamide 5813-89-8,  
 2-Thiophenecarboxamide 5824-40-8 6083-47-2 6092-85-9 6321-12-6  
 6343-93-7 7148-06-3 13512-57-7 20094-91-1 20225-24-5  
 24424-99-5 27126-76-7 29745-44-6, 2-Pyridinecarbonyl chloride  
 33229-89-9 51479-70-0 51479-75-5 54221-37-3 57736-10-4  
 59874-79-2 61543-21-3 62004-76-6 63383-46-0 66475-89-6  
 72443-52-8 84642-54-6 88423-10-3 88518-80-3 88798-15-6  
 89222-12-8 90646-70-1 94489-12-0 96292-23-8 101513-83-1  
 102101-46-2 102101-47-3 102101-48-4 102101-50-8 102101-52-0  
 104808-41-5 111267-98-2 111268-02-1 111268-03-2 111290-73-4  
 116905-72-7 116905-74-9 118087-36-8 118087-38-0 118087-41-5  
 140382-00-9 151052-24-3 151052-25-4 152491-92-4 154674-50-7  
 159050-40-5 159050-42-7 159050-49-4 159050-51-8 159050-53-0  
 160563-88-2 160563-89-3 160563-90-6 160563-91-7 160563-92-8  
 162089-63-6 174532-76-4 177171-56-1 177259-75-5 183543-40-0  
 187940-17-6 188570-07-2 188570-09-4 188570-14-1 199917-92-5  
 201792-91-8 219844-41-4 301180-41-6 301180-49-4 301180-51-8  
 326478-81-3 367252-61-7 445411-74-5 496881-80-2 510730-60-6  
 510730-61-7 510730-62-8 510730-63-9 611182-32-2 866404-15-1  
 908150-30-1 908150-38-9 945990-51-2 945990-52-3 945990-53-4  
 945990-54-5 949890-69-1 1033726-47-4  
 (review preparation of alkyl/cycloalkylamines via rearrangement)  
 REFERENCE COUNT: 284 THERE ARE 284 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L31 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:181782 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 142:282594

TITLE: Fuel compositions employing catalyst combustion structure

INVENTOR(S): Orr, William C.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 65 pp., Cont.-in-part of  
 U.S. Ser. No. 986,891.

DOCUMENT TYPE: CODEN: USXXCO  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: 6 English  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050044778	A1	20050303	US 2003-722127	20031124
US 6652608	B1	20031125	US 1997-986891	19971208
PRIORITY APPLN. INFO.:			US 1997-986891	A2 19971208
			US 1994-205945	B2 19940302
			US 1996-763696	B2 19961209

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

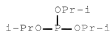
ED Entered STN: 04 Mar 2005

AB Metallic vapor phase fuel compns. relating to a broad spectrum of pollution reducing, improved combustion performance, and enhanced stability fuel compns. for use in jet, aviation, turbine, diesel, gasoline, and other combustion applications include co-combustion agents preferably including trimethoxymethylsilane.

IT 116-17-6, Triisopropyl phosphite 121-45-9,  
 Trimethyl phosphite 122-52-1, Triethyl phosphite  
 554-70-1, Triethylphosphine 7440-50-8D, Copper,  
 compds.  
 (fuel compns. employing oxygenate additives and catalyst combustion structures)

RN 116-17-6 HCAPLUS

CN Phosphorous acid, tris(1-methylethyl) ester (CA INDEX NAME)



RN 121-45-9 HCAPLUS

CN Phosphorous acid, trimethyl ester (CA INDEX NAME)



RN 122-52-1 HCAPLUS

CN Phosphorous acid, triethyl ester (CA INDEX NAME)



RN 554-70-1 HCAPLUS  
 CN Phosphine, triethyl- (CA INDEX NAME)



RN 7440-50-8 HCAPLUS  
 CN Copper (CA INDEX NAME)

Cu

IT 64-18-6D, Formic acid, derivs. and alkyl esters  
 590-29-4, Potassium formate  
 (fuel compns. employing oxygenate additives and catalyst combustion structures)  
 RN 64-18-6 HCAPLUS  
 CN Formic acid (CA INDEX NAME)



RN 590-29-4 HCAPLUS  
 CN Formic acid, potassium salt (1:1) (CA INDEX NAME)



IC ICM C10L001-28  
 ICS C10L001-24; C10L001-18; C10L001-12; C10L001-26  
 INCL 044320000; 044435000; 044378000; 044388000; 044385000; 044444000;  
 044443000  
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
 IT 64-19-7, Acetic acid, uses 64-19-7D, Acetic acid, alkyl and  
 C3-C8-hydroxyalkyl esters, salts, esters, and other derivs. 75-76-3,  
 Tetramethylsilane 77-49-6, 2-Methyl-2-nitro-1,3-propanediol  
 78-09-1, Tetraethoxymethane 78-10-4, Tetraethoxysilane 78-26-2,  
 2-Methyl-2-propyl-1,3-propanediol 78-38-6, Diethyl ethylphosphonate  
 78-40-0, Triethyl phosphate 78-62-6, Diethoxydimethylsilane  
 79-14-1D, Hydroxyacetic acid, alkyl esters 79-20-9, Methyl acetate  
 96-35-5, Methyl hydroxyacetate 100-67-4, Potassium phenoxide  
 101-02-0 102-09-0, Diphenyl carbonate 102-85-2, Tributyl phosphite  
 105-54-4, Ethyl butanoate 105-58-8, Diethyl carbonate 107-46-0,



Hexamethyldisiloxane 107-51-7, Octamethyltrisiloxane 108-24-7  
 108-95-2, Phenol, uses 109-78-4, Hydracrylonitrile 109-87-5,  
 Methylal 110-49-6, 2-Methoxyethyl acetate 111-15-9, 2-Ethoxyethyl  
 acetate 115-80-0, 1,1,1-Triethoxypropane 116-17-6,  
 Triisopropyl phosphite 121-45-9, Trimethyl phosphite  
 122-52-1, Triethyl phosphite 123-22-8 126-68-1 126-73-8,  
 Tributyl phosphite, uses 127-08-2, Potassium acetate 138-84-1,  
 Potassium p-aminobenzoate 149-73-5, Trimethyl orthoformate  
 298-12-4, Oxaloacetic acid 300-85-6, 3-Hydroxybutanoic acid 461-35-8  
 462-95-3, Ethylal 463-84-3D, Orthocarbonic acid, tetraalkyl ethers  
 471-47-6, Aminooxoacetic acid 471-47-6D, Aminooxoacetic acid,  
 hydrazide derivative 509-14-8, Tetranitromethane 512-56-1, Trimethyl  
 phosphate 513-08-6, Tripropyl phosphate 515-96-8 541-05-9  
 541-50-4, Acetoacetic acid, uses 542-52-9, Dibutyl carbonate  
 554-70-1, Triethylphosphine 557-17-5, Methyl propyl ether  
 558-43-0, 2-Methyl-1,2-propanediol 582-25-2, Potassium benzoate  
 594-70-7, 2-Methyl-2-nitropropane 597-50-2, Triethylphosphine oxide  
 597-72-8, Tetrapropoxymethane 598-02-7, Diethyl phosphate  
 598-53-8, Isopropyl methyl ether 600-15-7, 2-Hydroxybutanoic acid  
 616-38-6, Dimethyl carbonate 616-45-5, 2-Pyrrolidinone 623-42-7,  
 Methyl butanoate 623-50-7, Ethyl hydroxyacetate 623-53-0,  
 Ethylmethyl carbonate 623-86-9 623-96-1, Dipropyl carbonate  
 625-44-5, Isobutyl methyl ether 625-45-6, Methoxyacetic acid  
 625-74-1, 2-Methyl-1-nitropropane 627-03-2, Ethoxyacetic acid  
 627-08-7 628-28-4, Butyl methyl ether 628-32-0, Ethyl propyl ether  
 631-36-7, Tetraethylsilane 631-61-8, Ammonium acetate 637-92-3  
 676-96-0, Trimethylphosphine oxide 681-06-1, O,O-Dimethyl  
 Methylphosphonothioate 681-84-5, Tetramethoxysilane 682-01-9,  
 Tetrapropoxysilane 683-08-9, Diethyl methyl phosphonate 756-79-6,  
 Dimethyl methyl phosphonate 762-04-9, Diethyl phosphite 770-09-2,  
 Benzyltrimethylsilane 791-31-1, Triphenylsilanol 813-76-3,  
 Diethylphosphinic acid 813-78-5, Dimethyl phosphate 814-49-3,  
 Diethyl chlorophosphate 865-33-8, Potassium methoxide 865-47-4  
 868-85-9, Dimethyl phosphite 877-24-7, Potassium hydrogen phthalate  
 917-58-8, Potassium ethoxide 919-30-2, 3-Aminopropyltriethoxysilane  
 919-94-8, tert-Amyl ethyl ether 923-99-9, Tripropyl phosphite  
 924-44-7 928-04-1, Monopotassium acetylenedicarboxylate 947-42-2  
 994-05-8 994-79-6, Tetrabutylsilane 999-97-3,  
 1,1,1,3,3,3-Hexamethyldisilazane 1009-93-4,  
 2,2,4,4,6,6-Hexamethylcyclotrisilazane 1066-53-1, Methyl  
 methylphosphonate 1112-39-6, Dimethyldimethoxysilane 1115-63-5,  
 L-Aspartic acid monopotassium salt 1185-55-3, Trimethoxymethylsilane  
 1445-45-0, Trimethyl orthoacetate 1760-24-3,  
 N-Aminoethyl-3-aminopropyltrimethoxysilane 1809-19-4, Dibutyl  
 phosphite 1809-21-8, Dipropyl phosphite 1825-62-3,  
 Ethoxytrimethylsilane 1832-53-7, Phosphonic acid, methyl ethyl ester  
 1850-14-2, Tetramethoxymethane 2031-67-6, Triethoxymethylsilane  
 2224-33-1, Vinyltris[(2-butylidene)aminoxy]silane 2524-09-6  
 2568-91-4 2768-02-7, Vinyltrimethoxysilane 3049-24-9, Triphenyl  
 phosphonate 3141-12-6, Ethyl arsenite 3283-12-3,  
 Dimethylphosphinic acid 3385-94-2, Hexamethyldisilthiane  
 3429-55-8, Tetrakispropylsilane 3429-67-2, Tetrakisbutylsilane  
 3999-70-0, Potassium butoxide 4219-46-9, 2-Hydroxyethyl butyrate  
 4382-76-7, Methoxymethyl acetate 4447-60-3 4721-34-0,  
 Isobutylphosphonic acid 4775-09-1 4851-64-3 4923-84-6  
 5021-93-2, Diethoxydiethylsilane 5405-41-4, Ethyl 3-Hydroxybutanoate  
 6163-75-3 6831-82-9, Potassium isopropoxide 7320-34-5, Potassium  
 pyrophosphate 7429-90-5D, Aluminum, compds. 7429-91-6D,  
 Dysprosium, compds. 7439-88-5D, Iridium, compds. 7439-89-6D, Iron,  
 compds. 7439-91-0D, Lanthanum, compds. 7439-93-2D, Lithium,

- comps. 7439-94-3D, Lutetium, comps. 7439-95-4D, Magnesium, comps. 7439-96-5D, Manganese, comps. 7439-97-6D, Mercury, comps. 7439-98-7D, Molybdenum, comps. 7439-99-8D, Neptunium, comps. 7440-00-8D, Neodymium, comps. 7440-02-0D, Nickel, comps. 7440-03-1D, Niobium, comps. 7440-04-2D, Osmium, comps. 7440-05-3D, Palladium, comps. 7440-06-4D, Platinum, comps. 7440-07-5D, Plutonium, comps. 7440-08-6D, Polonium, comps. 7440-09-7D, Potassium, comps. 7440-10-0D, Praseodymium, comps. 7440-12-2D, Promethium, comps. 7440-13-3D, Protactinium, comps. 7440-14-4D, Radium, comps. 7440-15-5D, Rhenium, comps. 7440-16-6D, Rhodium, comps. 7440-17-7D, Rubidium, comps. 7440-18-8D, Ruthenium, comps. 7440-19-9D, Samarium, comps. 7440-20-2D, Scandium, comps. 7440-21-3D, Silicon, comps. 7440-22-4D, Silver, comps. 7440-23-5D, Sodium, comps. 7440-24-6D, Strontium, comps. 7440-25-7D, Tantalum, comps. 7440-27-9D, Terbium, comps. 7440-29-1D, Thorium, comps. 7440-30-4D, Thulium, comps. 7440-31-5D, Tin, comps. 7440-32-6D, Titanium, comps. 7440-33-7D, Tungsten, comps. 7440-34-8D, Actinium, comps. 7440-35-9D, Americium, comps. 7440-36-0D, Antimony, comps. 7440-38-2D, Arsenic, comps. 7440-39-3D, Barium, comps. 7440-40-6D, Berkelium, comps. 7440-41-7D, Beryllium, comps. 7440-42-8D, Boron, comps. 7440-43-9D, Cadmium, comps. 7440-45-1D, Cerium, comps. 7440-46-2D, Cesium, comps. 7440-47-3D, Chromium, comps. 7440-48-4D, Cobalt, comps. 7440-50-8D, Copper, comps. 7440-51-9D, Curium, comps. 7440-52-0D, Erbium, comps. 7440-53-1D, Europium, comps. 7440-54-2D, Gadolinium, comps. 7440-55-3D, Gallium, comps. 7440-56-4D, Germanium, comps. 7440-57-5D, Gold, comps. 7440-58-6D, Hafnium, comps. 7440-60-0D, Holmium, comps. 7440-61-1D, Uranium, comps. 7440-62-2D, Vanadium, comps. 7440-64-4D, Ytterbium, comps. 7440-65-5D, Yttrium, comps. 7440-66-6D, Zinc, comps. 7440-67-7D, Zirconium, comps. 7440-68-8D, Astatine, comps. 7440-69-9D, Bismuth, comps. 7440-70-2D, Calcium, comps. 7440-71-3D, Californium, comps. 7440-73-5D, Francium, comps. 7440-74-6D, Indium, comps. 7447-40-7, Potassium chloride, uses 7553-56-2D, Iodine, comps. 7646-93-7, Potassium hydrogen sulfate 7723-14-0D, Phosphorus, comps. 7726-95-6, Bromine, uses 7726-95-6D, Bromine, comps. 7778-77-0, Potassium dihydrogen phosphate 7782-49-2D, Selenium, comps. 7789-92-6, 1,1,3-Triethoxypropane 10519-96-7, Potassium trimethylsilanolate 13086-84-5, Di-tert-butyl phosphite 13494-80-9D, Tellurium, comps. 13598-36-2D, Phosphonic acid, derivs. 13746-66-2, Potassium hexacyanoferrate (III) 13820-09-2, Trimethyl orthovalerate 13821-10-8 13822-56-5, 3-Aminopropyltrimethoxysilane 13831-30-6, (Acetyloxy)acetic acid 13943-58-3, Potassium hexacyanoferrate (II) 13963-58-1, Potassium hexacyanocobaltate 14217-04-0, Magnesium ferrocyanide 14315-97-0, 1,1,3-Trimethoxypropane 14451-61-7, 3-Hydroxypropyl butanoate (fuel comps. employing oxygenate additives and catalyst combustion structures)
- IT 62-53-3D, Aniline, derivs. 64-17-5, Ethanol, uses 64-18-6D, Formic acid, derivs. and alkyl esters 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 71-36-3, n-Butanol, uses 74-89-5D, Methylamine, derivs. 75-52-5, Nitromethane, uses 75-65-0, uses 78-83-1, Isobutanol, uses 78-92-2, 2-Butanol 79-14-1, 2-Hydroxyacetic acid, uses 79-24-3, Nitroethane 87-59-2, 2,3-Xylidine 107-92-6D, Butyric acid, alkyl esters 108-20-3, Diisopropyl ether 115-10-6, Dimethyl ether 144-62-7D, Oxalic acid, esters and other derivs. 298-12-4D, derivs. 302-01-2D, Hydrazine, derivs. 463-79-6D, Carbonic acid, C3-C20 alkyl and dialkyl esters

503-81-1D, Dicarboxylic acid, C3-C20 alkyl and dialkyl esters  
 590-29-4, Potassium formate 1300-73-8, Xylidine 1450-14-2,  
 Hexamethyldisilane 1634-04-4, Methyl tert-butyl ether 7664-41-7,  
 Ammonia, uses 7697-37-2D, Nitric acid, alkyl, cyclo, cycloalkyl, and  
 aryl esters, uses 7782-41-4D, Fluorine, compds. 7782-50-5D,  
 Chlorine, compds. 10043-35-3D, Boric acid, derivs. 12108-13-3,  
 Methylcyclopentadienyl manganese tricarbonyl 14007-45-5, Potassium  
 L-Aspartate 14452-93-8D, Nitrosyl cation, salts 22423-53-6,  
 Methoxymethylsilane 25322-01-4, Nitropropane 209682-23-5  
 (fuel compns. employing oxygenate additives and catalyst combustion  
 structures)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS  
 RECORD (4 CITINGS)

L31 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:255121 HCAPLUS Full-text  
 DOCUMENT NUMBER: 138:272092  
 TITLE: Atom or group transfer radical polymerization in  
 the presence of transition metals  
 INVENTOR(S): Matyjaszewski, Krzysztof; Gaynor, Scott G.; Coca,  
 Simion  
 PATENT ASSIGNEE(S): Carnegie Mellon University, USA  
 SOURCE: U.S., 90 pp., Cont.-in-part of U.S. 6,407,187.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 7  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6541580	B1	20030401	US 1999-369157	19990806
US 5763548	A	19980609	US 1995-414415	19950331
CA 2510397	A1	19961003	CA 1996-2510397	19960319
CA 2510397	C	20091117		
EP 1637543	A2	20060322	EP 2005-25891	19960319
EP 1637543	A3	20061122		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, AL				
US 6538091	B1	20030325	US 1998-18554	19980204
US 6407187	B1	20020618	US 1998-34187	19980303
US 6512060	B1	20030128	US 1999-359591	19990723
US 20020183473	A1	20021205	US 2001-34908	20011221
US 7049373	B2	20060523		
US 20020193538	A1	20021219	US 2002-98052	20020313
US 6624263	B2	20030923		
US 20030181619	A1	20030925	US 2002-289545	20021107
US 6887962	B2	20050503		
US 20030216528	A1	20031120	US 2003-456324	20030606
US 20040204556	A1	20041014	US 2004-781061	20040218
US 7125938	B2	20061024		
US 20050090632	A1	20050428	US 2004-992249	20041118
US 20050143546	A1	20050630	US 2005-59217	20050216
US 7572874	B2	20090811		
US 20060258826	A1	20061116	US 2006-430216	20060508
US 7678869	B2	20100316		
JP 2009114461	A	20090528	JP 2009-18645	20090129
PRIORITY APPLN. INFO.:			US 1995-414415	A3 19950331
			US 1997-39543P	P 19970311

US 1997-41620P	P 19970402
US 1998-18554	A3 19980204
US 1998-34187	A2 19980303
US 1995-559309	A3 19951115
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EP 1996-909643	A3 19960319
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US 2000-257738P	P 20001222
US 2002-98052	A1 20020313
US 2002-289545	A3 20021107
US 2003-456324	A1 20030606
US 2004-781061	A1 20040218

ED Entered STN: 03 Apr 2003

AB A process for ATRP polymerization and coupling of mols. by radical processes is provided, wherein improvements are provided by using transition metal of zero oxidation state in place of or in addition to transition metal complexes to give improved control over mol. weight, mol. weight distribution and compns. of the products formed. Alternatively, these improvements are achieved by using mixed transition metal compound systems in which 1 of the transition metals is in a higher of 2 available oxidation state and the other is in a lower of 2 available oxidation states, wherein the 2 metals are different. Alternatively, these improvements are achieved by using compds. of Fe, Mn, Cr, or Cu that can participate in a reversible redox cycle with  $\geq 1$  of initiators, dormant polymer chain ends, and growing polymer chain ends. Thus, heating 10 mg Fe powder, 69 mg PPh<sub>3</sub>, 1 mL styrene, and 12  $\mu$ L 1-phenylethyl bromide 9 h at 110° gave 70% polymer with Mn 6780 and Mw/Mn 1.19.

IT 7440-50-8, Copper, uses  
(atom or group transfer radical polymerization in presence of zero valent transition metals)

RN 7440-50-8 HCAPLUS

CN Copper (CA INDEX NAME)

Cu

IT 64-18-6, Formic acid, reactions  
(cocatalyst precursor; atom or group transfer radical polymerization in

presence of transition metal compds. that participate in reversible redox cycles with initiators, dormant polymer chain ends, or growing polymer chain ends)

RN 64-18-6 HCAPLUS

CN Formic acid (CA INDEX NAME)



IT 998-40-3, Tributylphosphine

(cocatalyst; atom or group transfer radical polymerization in presence of transition metal compds. that participate in reversible redox cycles with initiators, dormant polymer chain ends, or growing polymer chain ends)

RN 998-40-3 HCAPLUS

CN Phosphine, tributyl- (CA INDEX NAME)



IC ICM C08F0004-06

ICS C08F0004-40; C08F0004-42

INCL 526090000; 526113000; 526118000; 526135000; 526172000; 526328000; 526335000; 526346000; 526347000

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

IT 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-19-9, Samarium, uses 7440-22-4, Silver, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses (atom or group transfer radical polymerization in presence of zero valent transition metals)

IT 64-18-6, Formic acid, reactions 111-40-0,

Diethylenetriamine 123-72-8, Butyraldehyde 4097-89-6, Tren (cocatalyst precursor; atom or group transfer radical polymerization in presence of transition metal compds. that participate in reversible redox cycles with initiators, dormant polymer chain ends, or growing polymer chain ends)

IT 80-58-0, 2-Bromobutyric acid 94-36-0, Benzoyl peroxide, uses 110-18-9, N,N,N',N'-Tetramethylethylenediamine 124-63-0, Methanesulfonyl chloride 148-24-3, 8-Hydroxyquinoline, uses 535-11-5, Ethyl 2-bromopropionate 672-65-1, 1-Phenylethyl chloride 998-40-3, Tributylphosphine 1116-76-3, Trioctylamine 1643-19-2, Tetrabutylammonium bromide 2052-01-9, 2-Bromoisobutyric acid 2212-32-0, 2-[[2-(Dimethylamino)ethyl]methylamino]ethanol 3012-37-1, Benzyl thiocyanate 3030-47-5, PMDETA 4328-13-6, Tetrahexylammonium bromide 17639-93-9, Methyl 2-chloropropionate 18301-66-1, Trimethylsilyl 2-bromobutyrate 24457-21-4, tert-Butyl 2-bromobutyrate 41203-22-9, 1,4,8,11-Tetramethyl-1,4,8,11-tetraazacyclotetradecane 56905-18-1, Methyl 2-iodopropionate 72914-19-3, 4,4'-Di-tert-butyl-2,2'-bipyridine 82280-42-0,

Hexakis[4-(bromomethyl)phenoxy]cyclotriphosphazene 213137-90-7,  
tert-Butyldimethylsilyl 2-bromobutyrate  
(cocatalyst; atom or group transfer radical polymerization in presence of  
transition metal compds. that participate in reversible redox  
cycles with initiators, dormant polymer chain ends, or growing  
polymer chain ends)

OS.CITING REF COUNT: 97 THERE ARE 97 CAPLUS RECORDS THAT CITE THIS  
RECORD (119 CITINGS)  
REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L31 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1994:662443 HCAPLUS Full-text  
DOCUMENT NUMBER: 121:262443  
ORIGINAL REFERENCE NO.: 121:47775a,47778a  
TITLE: French limiting values for occupational exposure  
to chemicals  
AUTHOR(S): Anon.  
CORPORATE SOURCE: Fr.  
SOURCE: Cahiers de Notes Documentaires (1993), 153, 557-74  
CODEN: CNDIBJ; ISSN: 0007-9952  
DOCUMENT TYPE: Journal  
LANGUAGE: French  
ED Entered STN: 26 Nov 1994  
AB Limit values (suggested limiting values and maximum permissible values) for  
occupational exposure to chems., including carcinogens, which have been  
published by the French Labor Ministry are presented in one table. This table  
is preceded by information on the following points: monitoring of workplace  
atmospheres (sampling and anal.; aerosols); permitted values (definitions and  
aims; additivity convention; elements and compds.; limiting occupational  
exposure values; carcinogens); mandatory values; and values recommended by the  
French National Health Insurance Fund (CNAM).  
IT 64-18-6, Formic acid, biological studies 121-45-9  
, Trimethyl phosphite 7440-50-8, Copper, biological  
studies  
(occupational exposure; occupational exposure and stds. for  
limiting workplace concns. of chems. in France)  
RN 64-18-6 HCAPLUS  
CN Formic acid (CA INDEX NAME)



RN 121-45-9 HCAPLUS  
CN Phosphorous acid, trimethyl ester (CA INDEX NAME)



RN 7440-50-8 HCAPLUS  
CN Copper (CA INDEX NAME)

Cu

CC 59-5 (Air Pollution and Industrial Hygiene)

IT 50-00-0, Formaldehyde, biological studies 50-29-3, biological studies 54-11-5, Nicotine 55-63-0, Nitroglycerine 56-23-5, Tetrachloromethane, biological studies 56-38-2, Parathion 56-81-5, 1,2,3-Propanetriol, biological studies 57-14-7, 1,1-Dimethylhydrazine 57-24-9, Strychnine 57-50-1, biological studies 58-89-9, Lindane 60-29-7, biological studies 60-34-4, Methylhydrazine 60-57-1, Dieldrin 62-53-3, Aniline, biological studies 62-73-7, Dichlorvos 62-74-8 63-25-2, Carbaryl 64-17-5, Ethanol, biological studies 64-18-6, Formic acid, biological studies 64-19-7, Acetic acid, biological studies 67-56-1, Methanol, biological studies 67-63-0, Isopropanol, biological studies 67-64-1, Acetone, biological studies 67-66-3, Trichloromethane, biological studies 67-72-1, Hexachloroethane 68-11-1, Thioglycolic acid, biological studies 68-12-2, biological studies 71-23-8, 1-Propanol, biological studies 71-36-3, n-Butyl alcohol, biological studies 71-43-2, Benzene, biological studies 71-55-6, 1,1,1-Trichloroethane 72-20-8, Endrin 72-43-5, Methoxychlor 74-83-9, Bromomethane, biological studies 74-87-3, Chloromethane, biological studies 74-89-5, Methylamine, biological studies 74-90-8, Hydrocyanic acid, biological studies 74-93-1, Methanethiol, biological studies 74-96-4, Bromoethane 74-97-5, Bromochloromethane 74-99-7, Propyne 75-00-3, Chloroethane 75-01-4, biological studies 75-04-7, Ethyl amine, biological studies 75-05-8, Acetonitrile, biological studies 75-07-0, Acetaldehyde, biological studies 75-08-1, Ethanethiol 75-09-2, Dichloromethane, biological studies 75-12-7, Formamide, biological studies 75-15-0, Carbon disulfide, biological studies 75-21-8, Oxirane, biological studies 75-25-2, Tribromomethane 75-31-0, Isopropylamine, biological studies 75-34-3, 1,1-Dichloroethane 75-35-4, 1,1-Dichloroethylene, biological studies 75-43-4, Dichlorofluoromethane 75-44-5, Carbonic dichloride 75-45-6, Chlorodifluoromethane 75-47-8, Iodoform 75-50-3, Trimethylamine, biological studies 75-52-5, Nitromethane, biological studies 75-56-9, biological studies 75-61-6, Dibromodifluoromethane 75-63-8, Bromotrifluoromethane 75-65-0, tert-Butyl alcohol, biological studies 75-69-4, Trichlorofluoromethane 75-71-8, Dichlorodifluoromethane 75-74-1, Tetramethyllead 75-99-0, 2,2-Dichloropropionic acid 76-03-9, Trichloroacetic acid, biological studies 76-06-2 76-11-9 76-12-0, 1,1,2,2-Tetrachlorodifluoroethane 76-13-1, 1,1,2-Trichlorotrifluoroethane 76-14-2, 1,2-Dichlorotetrafluoroethane 76-15-3, Chloropentafluoroethane 76-22-2, Camphor 77-47-4, Hexachlorocyclopentadiene 77-73-6, Dicyclopentadiene 77-78-1, Dimethyl sulfate 78-00-2, Tetraethyllead 78-10-4 78-30-8 78-34-2, Dioxathion 78-59-1, Isophorone 78-83-1, Isobutyl alcohol, biological studies 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol 78-93-3, Methyl ethyl ketone, biological studies 79-01-6, Trichloroethylene, biological studies 79-04-9, Chloroacetyl chloride 79-06-1, 2-Propenamide, biological studies 79-09-4, Propionic acid, biological studies 79-10-7, 2-Propenoic acid, biological studies 79-24-3, Nitroethane 79-27-6, 1,1,2,2-Tetrabromoethane 79-34-5, 1,1,2,2-Tetrachloroethane 79-41-4, biological studies 80-62-6

81-81-2 83-26-1 84-66-2, Diethyl phthalate 84-74-2, Dibutyl phthalate 85-00-7, Diquat 85-44-9, 1,3-Isobenzofurandione 86-50-0, Azinphosmethyl 86-88-4 87-86-5, Pentachlorophenol 88-12-0, biological studies 88-89-1, Picric acid 89-72-5, o-sec-Butylphenol 90-04-0, o-Anisidine 91-20-3, Naphthalene, biological studies 91-59-8, 2-Naphthylamine 92-52-4, Biphenyl, biological studies 92-67-1, 4-Aminobiphenyl 92-84-2, Phenothiazine 92-87-5, Benzidine 93-76-5, 2,4,5-T 94-36-0, Dibenzoyl peroxide, biological studies 94-75-7, 2,4-D, biological studies 95-13-6, Indene 95-49-8, o-Chlorotoluene 95-50-1, 1,2-Dichlorobenzene 95-53-4, o-Toluidine, biological studies 96-22-0, Diethyl ketone 96-33-3 96-69-5 97-77-8, Disulfiram 98-00-0, Furfuryl alcohol 98-01-1, Furfural, biological studies 98-51-1, p-tert-Butyltoluene 98-82-8, Cumene 98-83-9, biological studies 98-95-3, Nitrobenzene, biological studies 99-08-1 100-01-6, 4-Nitroaniline, biological studies 100-37-8, 2-Diethylaminoethanol 100-41-4, Ethylbenzene, biological studies 100-42-5, biological studies 100-44-7,  $\alpha$ -Chlorotoluene, biological studies 100-61-8, biological studies 100-74-3, N-Ethylmorpholine 101-14-4, 3,3'-Dichloro-4,4'-diaminodiphenylmethane 101-68-8 101-84-8D, Diphenyl ether, chloro derivs. 102-54-5, Ferrocene 102-81-8, N,N-Dibutylaminoethanol 104-94-9, p-Anisidine 105-46-4, sec-Butyl acetate 105-60-2, biological studies 106-35-4, 3-Heptanone 106-46-7, 1,4-Dichlorobenzene 106-50-3, p-Phenylenediamine, biological studies 106-51-4, p-Benzoquinone, biological studies 106-89-8, biological studies 106-92-3 106-97-8, Butane, biological studies 107-02-8, 2-Propenal, biological studies 107-05-1, 3-Chloropropene 107-06-2, 1,2-Dichloroethane, biological studies 107-07-3, biological studies 107-13-1, 2-Propenenitrile, biological studies 107-15-3, 1,2-Ethanediamine, biological studies 107-18-6, Allyl alcohol, biological studies 107-19-7, Propargyl alcohol 107-20-0, Chloroacetaldehyde 107-21-1, 1,2-Ethanediol, biological studies 107-31-3, Methyl formate 107-41-5, Hexylene glycol 107-49-3 107-66-4, Dibutyl phosphate 107-87-9, Methyl propyl ketone 107-98-2, 1-Methoxy-2-propanol 108-03-2, 1-Nitropropane 108-05-4, Acetic acid ethenyl ester, biological studies 108-10-1, Methyl isobutyl ketone 108-11-2, 4-Methyl-2-pentanol 108-18-9, Diisopropylamine 108-20-3, Diisopropyl ether 108-21-4, Isopropyl acetate 108-24-7, Acetic anhydride 108-31-6, 2,5-Furandione, biological studies 108-46-3, Resorcinol, biological studies 108-57-6, 1,3-Divinylbenzene 108-83-8, Diisobutyl ketone 108-84-9 108-87-2, Methylcyclohexane 108-88-3, Toluene, biological studies 108-90-7, Chlorobenzene, biological studies 108-91-8, Cyclohexanamine, biological studies 108-93-0, Cyclohexanol, biological studies 108-94-1, Cyclohexanone, biological studies 108-95-2, Phenol, biological studies 108-98-5, Phenyl mercaptan, biological studies 109-59-1, 2-Isopropoxyethanol 109-60-4, Propyl acetate 109-66-0, Pentane, biological studies 109-73-9, Butylamine, biological studies 109-79-5, Butanethiol 109-86-4, 2-Methoxyethanol 109-87-5, Methylal 109-89-7, biological studies 109-94-4, Ethyl formate 109-99-9, biological studies 110-12-3, Methyl isoamyl ketone 110-19-0, Isobutyl acetate 110-43-0, 2-Heptanone 110-49-6, 2-Methoxyethyl acetate 110-54-3, n-Hexane, biological studies 110-62-3, Valeraldehyde 110-80-5, 2-Ethoxyethanol 110-82-7, Cyclohexane, biological studies 110-83-8, Cyclohexene, biological studies 110-86-1, Pyridine, biological studies 110-91-8, Morpholine, biological studies 111-15-9, 2-Ethoxyethyl acetate 111-30-8, Pentanediol 111-40-0 111-42-2, Diethanolamine, biological studies 111-44-4, Bis(2-chloroethyl) ether 111-65-9, Octane, biological studies



- 111-76-2, 2-Butoxyethanol 111-84-2, Nonane 114-26-1, Propoxur  
 115-29-7, Endosulfan 115-77-5, biological studies 115-86-6,  
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 120-80-9, 1,2-Benzenediol, biological studies 120-82-1,  
 1,2,4-Trichlorobenzene 121-44-8, biological studies  
 121-45-9, Trimethyl phosphite 121-69-7, N,N-Dimethylaniline,  
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 (occupational exposure; occupational exposure and stds. for  
 limiting workplace concns. of chems. in France)
- IT 122-39-4, Diphenylamine, biological studies 122-60-1 123-19-3,  
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 123-42-2, Diacetone alcohol 123-51-3, Isoamyl alcohol 123-73-9,  
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 127-18-4, Perchloroethylene, biological studies 127-19-5,  
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 141-32-2 141-43-5, biological studies 141-66-2, Microtophos  
 141-78-6, Acetic acid ethyl ester, biological studies 141-79-7,  
 Mesityl oxide 142-64-3 142-82-5, n-Heptane, biological studies  
 144-62-7, Ethanedioic acid, biological studies 148-01-6,  
 3,5-Dinitro-o-toluidine 150-76-5, 4-Methoxyphenol 156-62-7,  
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 629-73-2, Cetene 630-08-0, Carbon monoxide, biological studies  
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(occupational exposure; occupational exposure and stds. for  
 limiting workplace concns. of chems. in France)

L31 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1993:65829 HCAPLUS Full-text  
 DOCUMENT NUMBER: 118:65829  
 ORIGINAL REFERENCE NO.: 118:11581a,11584a  
 TITLE: Air contaminants  
 CORPORATE SOURCE: Occupational Safety and Health Administration, U.  
 S. Dep. Labor, Washington, DC, 20210, USA  
 SOURCE: Federal Register (1992), 57(114, Bk. 2), 26002-601  
 , 12 Jun 1992  
 CODEN: FEREAC; ISSN: 0097-6326  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 16 Feb 1993  
 AB Proposed amendments of existing air contaminant stds. for the maritime and  
 construction industries and extension of air contaminant stds. to agricultural  
 employees (only employees of farms with >10 nonfamily employees are covered)  
 are given under the Federal Occupational Safety and Health Administration.  
 Tables that indicated transitional limits, based on established threshold  
 limit values, indication of skin protection needs, proposed time-weighted  
 average exposure (any 8-h work shift for 40-h week), short-term exposure limit  
 (15-min time-weighted average), ceiling (exposure during any part of the work  
 day, or if instantaneous monitoring is not feasible, the 15-min time-weighted  
 average), and/or skin protection needs are given for the shipyard, marine  
 terminal and longshoring, construction, and agricultural industries. Extensive  
 data on health effects of the substances to be regulated and preliminary  
 regulatory impact analyses are given for general industry and the specific  
 industrial sectors.  
 IT 64-18-6, Formic acid, biological studies 121-45-9  
 , Trimethyl phosphite 7440-50-8, Copper, biological  
 studies  
 (exposure limits to airborne, in agricultural and construction and  
 maritime industries, stds. for)  
 RN 64-18-6 HCAPLUS  
 CN Formic acid (CA INDEX NAME)

—CH—CH

RN 121-45-9 HCAPLUS  
 CN Phosphorous acid, trimethyl ester (CA INDEX NAME)



RN 7440-50-8 HCAPLUS  
 CN Copper (CA INDEX NAME)

Cu

CC 59-5 (Air Pollution and Industrial Hygiene)  
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(exposure limits to airborne, in agricultural and construction and maritime industries, stds. for)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L31 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1992:660359 HCAPLUS Full-text

DOCUMENT NUMBER: 117:260359

ORIGINAL REFERENCE NO.: 117:44861a,44864a

TITLE: Cyclic voltammetric study on carbon dioxide reduction using copper complexes as electrocatalysts

AUTHOR(S): Fujiwara, Hiroki; Nonaka, Tsutomu

CORPORATE SOURCE: Dep. Electron. Chem., Tokyo Inst. Technol., Yokohama, 227, Japan

SOURCE: Journal of Electroanalytical Chemistry (1992), 332(1-2), 303-7  
CODEN: JECHE5

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 26 Dec 1992

AB CO2 reduction was studied using HOCO2Cu(PPh3)2 electrocatalyst. The CuII complex formed in situ by addition of PPh3 to CuCl2 had an electrocatalytic activity for CO2 reduction quite similar to that of HOCO2Cu(PPh3)2.

IT 7440-50-8D, Copper, complexes  
(electrocatalysts, for carbon dioxide reduction)

RN 7440-50-8 HCAPLUS

CN Copper (CA INDEX NAME)

CU

IT 998-40-3D, Tributylphosphine, copper complexes  
(electrocatalysts, for copper reduction)

RN 998-40-3 HCAPLUS

CN Phosphine, tributyl- (CA INDEX NAME)





IT 64-18-6P, Formic acid, preparation  
(formation of, by electrolysis of carbon dioxide in presence of  
copper-triphenylphosphine complex)  
RN 64-18-6 HCAPLUS  
CN Formic acid (CA INDEX NAME)



CC 72-2 (Electrochemistry)  
Section cross-reference(s): 67  
IT 7440-50-8D, Copper, complexes 73716-93-5  
(electrocatalysts, for carbon dioxide reduction)  
IT 366-18-7D, 2,2'-Bipyridine, copper complexes 603-35-0D,  
Triphenylphosphine, copper complexes 998-40-3D,  
Tributylphosphine, copper complexes  
(electrocatalysts, for copper reduction)  
IT 64-18-6P, Formic acid, preparation 144-62-7P, Oxalic acid,  
preparation 630-08-0P, Carbon monoxide, preparation  
(formation of, by electrolysis of carbon dioxide in presence of  
copper-triphenylphosphine complex)  
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS  
RECORD (1 CITINGS)

L31 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1989:218230 HCAPLUS Full-text  
DOCUMENT NUMBER: 110:218230  
ORIGINAL REFERENCE NO.: 110:36135a,36138a  
TITLE: Air contaminants  
CORPORATE SOURCE: United States Occupational Safety and Health  
Administration, Washington, DC, 20210, USA  
SOURCE: Federal Register (1989), 54(12, Bk. 2), 2332-983,  
19 Jan 1989  
CODEN: FEREAC; ISSN: 0097-6326  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
ED Entered STN: 10 Jun 1989  
AB Under the Federal Occupational Safety and Health act, OSHA is amending  
existing air containment stds. and setting new permissible exposure limits for  
toxic substances commonly used in the workplace.  
IT 64-18-6, Formic acid, biological studies 121-45-9  
, Trimethyl phosphite 7440-50-8, Copper, biological  
studies  
(air pollution by, occupational exposure to, stds. for, in USA)  
RN 64-18-6 HCAPLUS  
CN Formic acid (CA INDEX NAME)



RN 121-45-9 HCAPLUS

CN Phosphorous acid, trimethyl ester (CA INDEX NAME)



RN 7440-50-8 HCAPLUS

CN Copper (CA INDEX NAME)

Cu

CC 59-5 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 4

IT 50-00-0, Formaldehyde, biological studies 50-29-3, biological studies 50-32-8, Benzo[a]pyrene, biological studies 50-78-2 53-96-3 54-11-5, Nicotine 55-38-9, Fenthion 55-63-0, Nitroglycerin 56-23-5, biological studies 56-38-2, Parathion 56-81-5, 1,2,3-Propanetriol, biological studies 57-14-7, 1,1-Dimethylhydrazine 57-24-9, Strychnine 57-50-1, biological studies 57-57-8, 2-Oxetanone 58-89-9, Lindane 60-11-7, 4-Dimethylaminoazobenzene 60-29-7, Ethyl ether, biological studies 60-34-4, Methyl hydrazine 60-57-1, Dieldrin 61-82-5, Amitrole 62-53-3, Aniline, biological studies 62-73-7, Dichlorvos 62-74-8, Sodium fluoroacetate 62-75-9, N-Nitrosodimethylamine 63-25-2 64-17-5, Ethyl alcohol, biological studies 64-18-6, Formic acid, biological studies 64-19-7, Acetic acid, biological studies 67-56-1, Methyl alcohol, biological studies 67-63-0, Isopropyl alcohol, biological studies 67-64-1, Acetone, biological studies 67-66-3, Chloroform, biological studies 67-72-1, Hexachloroethane 68-11-1, Thioglycolic acid, biological studies 68-12-2, Dimethylformamide, biological studies 71-23-8, n-Propyl alcohol, biological studies 71-36-3, n-Butyl alcohol, biological studies 71-43-2, Benzene, biological studies 71-55-6, Methyl chloroform 72-20-8, Endrin 72-43-5, Methoxychlor 74-83-9, Methyl bromide, biological studies 74-87-3, Methyl chloride, biological studies 74-88-4, biological studies 74-89-5, Methylamine, biological studies 74-90-8, Hydrogen cyanide, biological studies 74-93-1, Methyl mercaptan, biological studies 74-96-4, Ethyl bromide 74-97-5, Chlorobromomethane 74-98-6, Propane, biological studies 74-99-7, Methyl acetylene 75-00-3, Ethyl chloride 75-01-4, biological studies 75-04-7, Ethylamine, biological studies 75-05-8, Acetonitrile, biological studies 75-07-0, Acetaldehyde, biological studies 75-08-1, Ethyl mercaptan 75-09-2, Methylene chloride, biological studies 75-12-7, Formamide, biological studies 75-15-0, Carbon disulfide, biological studies 75-21-8, Oxirane, biological studies 75-25-2, Bromoform 75-31-0, Isopropylamine, biological

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 287-92-3, Cyclopentane 298-00-0, Methyl parathion 298-02-2,  
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 302-01-2, Hydrazine, biological studies 309-00-2, Aldrin 314-40-9,  
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 471-34-1, Carbonic acid calcium salt (1:1), biological studies  
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 532-27-4 534-52-1, Dinitro-o-cresol 540-59-0, 1,2-Dichloroethylene  
 540-88-5, tert-Butyl acetate 542-75-6, 1,3-Dichloropropene  
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 563-80-4, Methyl isopropyl ketone 583-60-8 584-84-9 591-78-6,  
 2-Hexanone 593-60-2, Vinyl bromide 594-42-3, Perchloromethyl  
 mercaptan 594-72-9, 1,1-Dichloro-1-nitroethane 600-25-9,  
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 isocyanate 626-17-5, 1,3-Benzenedicarbonitrile 627-13-4, n-Propyl  
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 dinitrate 630-08-0, Carbon monoxide, biological studies 638-21-1,  
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 1300-73-8, Xylidine 1303-86-2, Boron oxide 1303-96-4, Borax  
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 1321-65-9, Trichloronaphthalene 1321-74-0, Divinyl benzene,  
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 1335-87-1, Hexachloronaphthalene 1335-88-2, Tetrachloronaphthalene  
 1344-28-1,  $\alpha$ -Alumina, biological studies 1344-95-2, Calcium  
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 2238-07-5, Diglycidyl ether 2425-06-1, Captafol 2426-08-6  
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 4170-30-3, Crotonaldehyde 4685-14-7 5124-30-1 6423-43-4,  
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 7439-89-6, Iron, biological studies 7439-89-6D, Iron, salts  
 7439-92-1, Lead, biological studies 7439-96-5, Manganese, biological  
 studies 7439-96-5D, Manganese, compds. 7439-97-6, Mercury,

biological studies 7439-97-6D, Mercury, compds. 7439-98-7,  
 Molybdenum, biological studies 7439-98-7D, Molybdenum, compds.  
 7440-02-0, Nickel, biological studies 7440-02-0D, Nickel, compds.  
 7440-06-4, Platinum, biological studies 7440-06-4D, Platinum, salts  
 7440-16-6, Rhodium, biological studies 7440-16-6D, Rhodium, compds.  
 7440-21-3, Silicon, biological studies 7440-22-4, Silver, biological  
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 Thallium, compds. 7440-31-5, Tin, biological studies 7440-31-5D,  
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 Tungsten, compds. 7440-36-0, Antimony, biological studies  
 7440-38-2D, Arsenic, inorg. and organic compds. 7440-39-3D, Barium,  
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 7440-62-2, Vanadium, biological studies 7440-65-5, Yttrium,  
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 Sulfur dioxide, biological studies 7553-56-2, Iodine, biological  
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 7616-94-6, Perchloryl fluoride 7631-86-9, Silica, biological studies  
 7631-90-5, Sodium bisulfite 7637-07-2, Boron trifluoride, biological  
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 Hydrogen chloride, biological studies 7664-38-2, Phosphoric acid,  
 biological studies 7664-39-3, Hydrogen fluoride, biological studies  
 7664-41-7, Ammonia, biological studies 7664-93-9, Sulfuric acid,  
 biological studies  
 (air pollution by, occupational exposure to, stds. for, in USA)

=> d his nofile

(FILE 'HOME' ENTERED AT 10:10:48 ON 02 APR 2010)

FILE 'HCAPLUS' ENTERED AT 10:10:58 ON 02 APR 2010

L1 1 SEA SPE=ON ABB=ON PLU=ON US20070197810/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 10:11:14 ON 02 APR 2010

L2 40 SEA SPE=ON ABB=ON PLU=ON (116-17-6/BI OR 121-45-9/BI OR  
122-52-1/BI OR 2769-64-4/BI OR 370-69-4/BI OR 4125-25-1/BI  
OR 554-70-1/BI OR 594-09-2/BI OR 598-45-8/BI OR 603-35-0/BI  
OR 624-88-4/BI OR 64-18-6/BI OR 6476-36-4/BI OR 7188-38-7/  
BI OR 7440-50-8/BI OR 7650-88-6/BI OR 7758-89-6/BI OR  
855516-69-7/BI OR 855516-71-1/BI OR 855516-73-3/BI OR  
855516-75-5/BI OR 855516-77-7/BI OR 855516-79-9/BI OR  
855516-81-3/BI OR 855516-83-5/BI OR 855516-85-7/BI OR  
855516-87-9/BI OR 855516-89-1/BI OR 855516-91-5/BI OR  
855516-93-7/BI OR 855516-95-9/BI OR 855516-97-1/BI OR  
855516-99-3/BI OR 855517-00-9/BI OR 855517-02-1/BI OR  
855517-04-3/BI OR 855517-06-5/BI OR 855517-08-7/BI OR  
931-53-3/BI OR 998-40-3/BI)

L3 12 SEA SPE=ON ABB=ON PLU=ON L2 NOT P/ELS  
L4 STR

L5 47 SEA SSS SAM L4

L6 10858 SEA SPE=ON ABB=ON PLU=ON 64-18-6/CRN

L7 4228 SEA SSS FUL L4

L8 11 SEA SPE=ON ABB=ON PLU=ON L7 AND L2

L9 11 SEA SPE=ON ABB=ON PLU=ON L6 AND L7

SAV VET103/A L7

FILE 'HCAPLUS' ENTERED AT 12:54:24 ON 02 APR 2010

L10 1 SEA SPE=ON ABB=ON PLU=ON L9

L11 5829 SEA SPE=ON ABB=ON PLU=ON L7

L12 15157 SEA SPE=ON ABB=ON PLU=ON L6

L13 27 SEA SPE=ON ABB=ON PLU=ON L11 AND L12

FILE 'REGISTRY' ENTERED AT 12:55:32 ON 02 APR 2010

L14 STR

L15 0 SEA SUB=L7 SSS SAM L14

L16 27 SEA SUB=L7 SSS FUL L14

SAV L16 VET103A/A

L17 16 SEA SPE=ON ABB=ON PLU=ON L16 NOT L9

FILE 'HCAPLUS' ENTERED AT 13:18:11 ON 02 APR 2010

L18 9 SEA SPE=ON ABB=ON PLU=ON L16

L19 26 SEA SPE=ON ABB=ON PLU=ON L13 NOT L18

L20 24 SEA SPE=ON ABB=ON PLU=ON L2 AND CU/ELS

L21 16 SEA SPE=ON ABB=ON PLU=ON L2 NOT L20

L22 15 SEA SPE=ON ABB=ON PLU=ON L21 NOT TRIPHEN?

E COPPER/CN

L23 1 SEA SPE=ON ABB=ON PLU=ON COPPER/CN

FILE 'REGISTRY' ENTERED AT 13:28:21 ON 02 APR 2010

L24 15 SEA SPE=ON ABB=ON PLU=ON L22 NOT L6

L25 1 SEA SPE=ON ABB=ON PLU=ON 64-18-6/RN

L26 14 SEA SPE=ON ABB=ON PLU=ON L22 NOT L25

10/583,103

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FILE 'HCAPLUS' ENTERED AT 13:29:21 ON 02 APR 2010
L27      624162 SEA SPE=ON ABB=ON PLU=ON L23
L28      20431 SEA SPE=ON ABB=ON PLU=ON L26
L29      43386 SEA SPE=ON ABB=ON PLU=ON L25
L30      9 SEA SPE=ON ABB=ON PLU=ON L27 AND L28 AND (L29 OR L6)
L31      8 SEA SPE=ON ABB=ON PLU=ON L30 NOT (L18 OR L19)
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